TOSHIBA

TOSHIBA Barcode Printer

B-EX4T3 SERIES

Owner's Manual



This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Centronics is a registered trademark of Centronics Data Computer Corp.
Microsoft is a registered trademark of Microsoft Corporation.
Windows is a trademark of Microsoft Corporation.

Notice regarding CR coin cell batteries, applicable to California, U.S.A. only: Perchlorate Material - special handling may apply.
See http://www.dtsc.ca.gov/hazardouswaste/perchlorate/

California Proposition 65 Warning: USA-California only
This Product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

(for USA California only)

Changes or modifications not expressly approved by the manufacturer for compliance could void the user's authority to operate the equipment.

This product is designed for commercial usage and is not consumer product.

Safety Summary

Personal safety in handling or maintaining the equipment is extremely important. Warnings and Cautions necessary for safe handling are included in this manual. All warnings and cautions contained in this manual should be read and understood before handling or maintaining the equipment.
Do not attempt to effect repairs or modifications to this equipment. If a fault occurs that cannot be rectified using the procedures described in this manual, turn off the power, unplug the machine, and then contact your authorised TOSHIBA TEC representative for assistance.

Meanings of Each Symbol



This symbol indicates warning items (including cautions).
Specific warning contents are drawn inside the △ symbol.
(The symbol on the left indicates a general caution.)



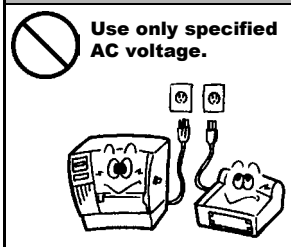
This symbol indicates prohibited actions (prohibited items).
Specific prohibited contents are drawn inside or near the ⃠ symbol.
(The symbol on the left indicates "no disassembling".)



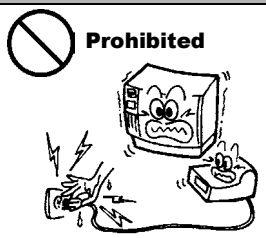
This symbol indicates actions which must be performed.
Specific instructions are drawn inside or near the ● symbol.
(The symbol on the left indicates "disconnect the power cord plug from the outlet".)



WARNING This indicates that there is the risk of **death** or **serious injury** if the machine is improperly handled contrary to this indication.



Do not use voltages other than the AC voltage specified on the rating plate, as this may cause **fire** or **electric shock**.



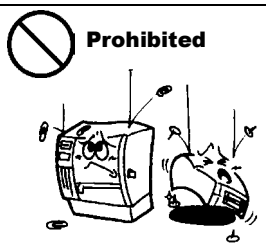
Do not plug in or unplug the power cord with wet hands as this may cause **electric shock**.



If the machine shares the same electrical outlet, with any other appliance that consumes a large amount of power, the voltage will fluctuate widely each time these appliances operate. Be sure to provide an exclusive outlet for the machine as this may cause **fire** or **electric shock**.



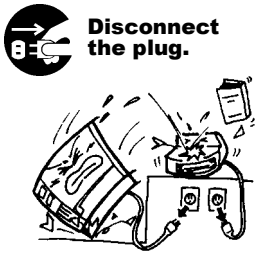
Do not place metal objects or water-filled containers (flower vases, flower pots or mugs etc) on top of the machine. If metal objects or spilled liquids enter the machine, this may cause **fire** or **electric shock**.



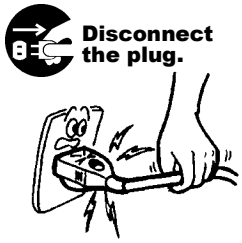
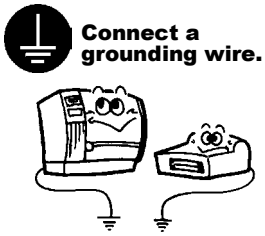
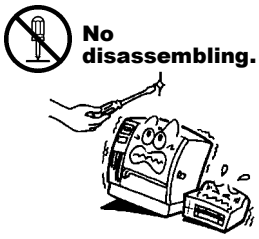
Do not insert or drop metal, flammable or other foreign objects into the machine through ventilation slits, as this may cause **fire** or **electric shock**.



Do not scratch, damage or modify the power cords. Do not place heavy objects on, pull on, or excessively bend the power cords, as this may cause **fire** or **electrical shock**.



If the machine is dropped or the cabinet is damaged, turn off the power switch and disconnect the power cord plug from the outlet, and then contact your authorised TOSHIBA TEC representative for assistance. Continued use of a damaged machine may cause **fire** or **electric shock**.

	If foreign objects (metal fragments, water, liquids) enter the machine, turn off the power switch and disconnect the power cord plug from the outlet, and then contact your authorised TOSHIBA TEC representative for assistance. Continued use of the machine in that condition may cause **fire** or **electric shock**.
	When unplugging the power cords, be sure to hold and pull on the plug. Pulling on the cord may cut or expose the internal wires and cause **fire** or **electric shock**.
	Ensure that the equipment is properly grounded. Extension cables should also be grounded. **Fire** or **electric shock** could occur on improperly grounded equipment.
	Do not remove covers, repair or modify the machine yourself. Contact your TOSHIBA TEC representative for assistance. You may be **injured** by high voltage, very hot parts or sharp edges inside the machine.
	Do not use a spray cleaner containing flammable gas for cleaning this product, as this may cause a **fire**.
	Care must be taken not to injure yourself with the printer paper cutter.

CAUTION This indicates that there is the risk of personal **Injury** or **damage** to objects if the machine is improperly handled contrary to this indication.

Precautions

The following precautions will help to ensure that this machine will continue to function correctly.

- Try to avoid locations that have the following adverse conditions:
  - * Temperatures out of the specification
  - * Direct sunlight
  - * High humidity
  - * Shared power source
  - * Excessive vibration
  - * Dust/Gas
- The cover should be cleaned by wiping with a dry cloth or a cloth slightly dampened with a mild detergent solution. NEVER USE THINNER OR ANY OTHER VOLATILE SOLVENT on the plastic covers.
- USE ONLY TOSHIBA TEC SPECIFIED paper and ribbons.
- DO NOT STORE the paper or ribbons where they might be exposed to direct sunlight, high temperatures, high humidity, dust, or gas.
- Ensure the printer is operated on a level surface.
- Any data stored in the memory of the printer could be lost during a printer fault.
- Try to avoid using this equipment on the same power supply as high voltage equipment or equipment likely to cause mains interference.
- Unplug the machine whenever you are working inside it or cleaning it.
- Keep your work environment static free.
- Do not place heavy objects on top of the machine, as these items may become unbalanced and fall causing **injury**.
- Do not block the ventilation slits of the machine, as this will cause heat to build up inside the machine and may cause **fire**.
- Do not lean against the machine. It may fall on you and could cause **injury**.
- Unplug the machine when it is not used for a long period of time.
- Place the machine on a stable and level surface.

Request Regarding Maintenance

- Utilise our maintenance services.
  After purchasing the machine, contact your authorised TOSHIBA TEC representative for assistance once a year to have the inside of the machine cleaned. Dust will build up inside the machines and may cause a **fire** or a **malfunction**. Cleaning is particularly effective before humid rainy seasons.
- Our preventive maintenance service performs periodic checks and other work required to maintain the quality and performance of the machine.
  For details, please consult your authorised TOSHIBA TEC representative.
- Do not expose the machine to insecticides or other volatile solvents. This may cause the cabinet, or other parts, to deteriorate and may cause the paint to peel.

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1. PRODUCT OVERVIEW

1.1 Introduction

Thank you for choosing the TEC B-EX4T3 series bar code printer. This Owner's Manual contains from general set-up through to how to confirm the printer operation using a test print, and should be read carefully to help gain maximum performance and life from your printer. For most queries please refer to this manual and keep it safe for future reference. Please contact your TOSHIBA TEC representative for further information concerning this manual.

1.2 Features

This printer has the following features:

- The print head block can be opened providing smooth loading of media and ribbon.
- Various types of media can be used as the media sensors can be moved from the centre to the left edge of the media.
- Web based functions such as remote maintenance and other advanced network features are available.
- Superior hardware, including the specially developed 23.6 dots/mm (600 dots/inch) thermal print head which will allow very clear print at a printing speed of 2, 3, 4, 5 or 6 inches/sec.

- Besides the optional Cutter Module, there is also an optional Peel off Module, Centronics I/F card, Expansion I/O Card, Narrow width platen kit.

1.3 Unpacking

Unpack the printer as per the Unpacking Instructions supplied with the printer.

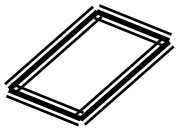
NOTES:

1. *Check for damage or scratches on the printer. However, please note that TOSHIBA TEC shall have no liability for any damage of any kind sustained during transportation of the product.*
2. *Keep the cartons and internal packing for future transportation of the printer.*

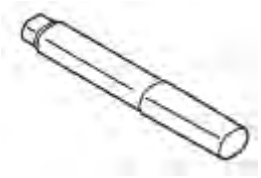
1.4 Accessories

When unpacking the printer, please make sure all the following accessories are supplied with the printer.

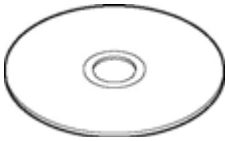
☐ Safety precaution
Quick Installation Manual



☐ Head cleaner pen



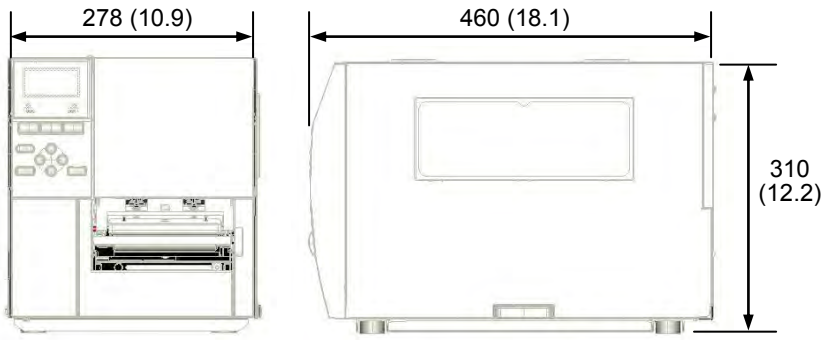
☐ CDROM



1.5 Appearance

The names of the parts or units introduced in this section are used in the following chapters.

1.5.1 Dimensions

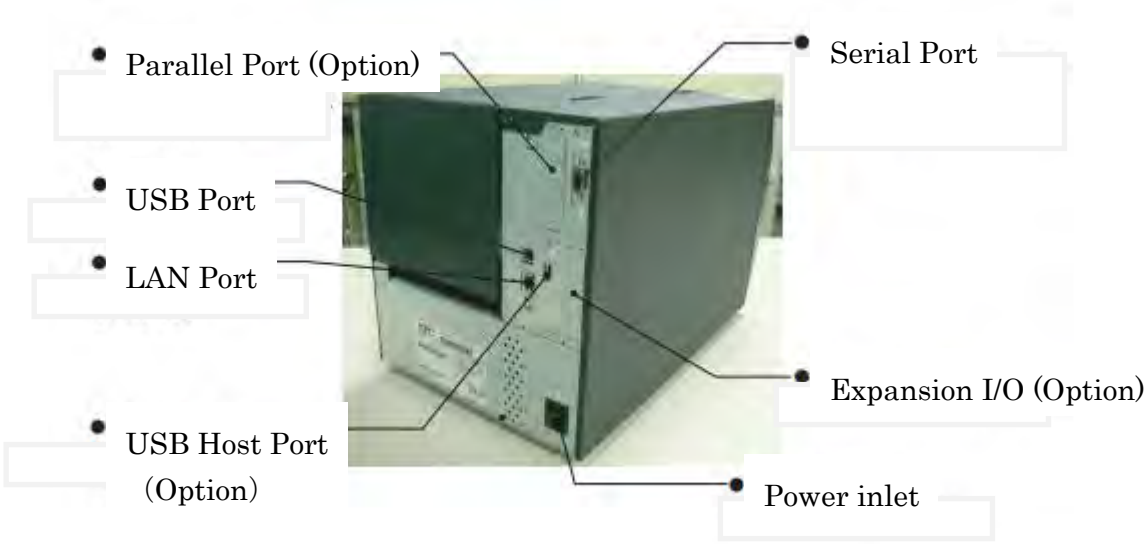


Dimensions in mm (inches)

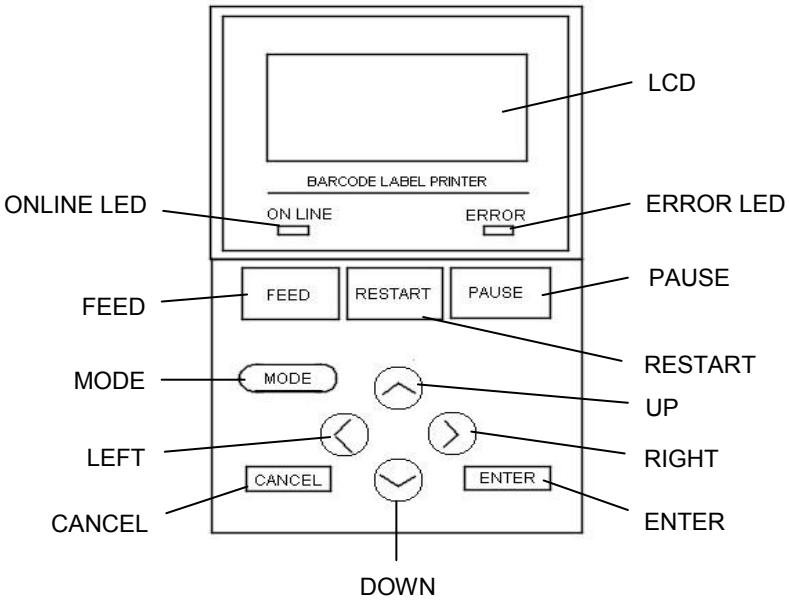
1.5.2 Front View



1.5.3 Rear View

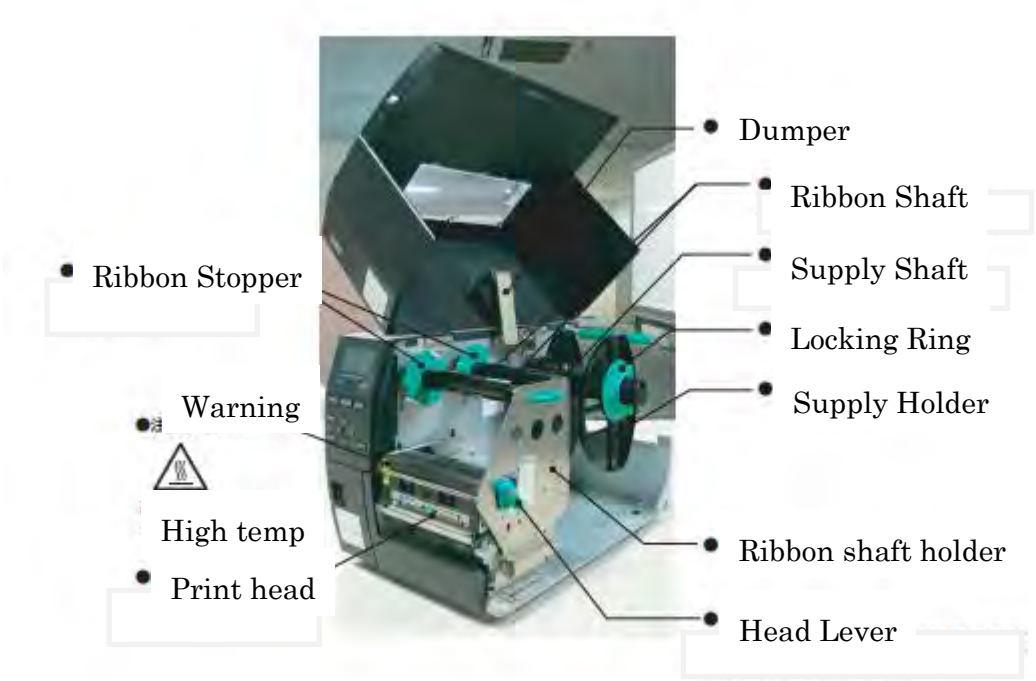


1.5.4 Operation Panel



Please see **Section 3** for further information about the Operation Panel.

1.5.5 Interior



1.6 Options

Option Name	Type	Description
Disc cutter module	B-EX204-QM-R	Disc cutter Each time media is cut, the media feed is stopped.
Peel off module	B-EX904-H-QM-R	This allows use of on-demand (peel-off) operation or to take-up labels and backing paper together when using the rewind guide plate.
Precious Peel off module	B-EX904-HH-QM-R	This allows use of on-demand (peel-off) operation or to take-up labels and backing paper together when using the rewind guide plate. To support peel off minimum 3mm length label.
Expansion I/O interface card	B-EX700-IO-QM-R	Installing this card in the printer allows connection to an external device with the exclusive interface.
Parallel interface card	B-EX700-CEN-QM-R	Installing this card provides a Centronics interface port.
RTC & USB host interface card	B-EX700-RTC-QM-R	This card holds the current time: year, month, day, hour, minute, second and provides a USB host interface.

NOTE:
To purchase the optional kits, please contact the nearest authorised TOSHIBA TEC representative or TOSHIBA TEC Head Quarters.

2. PRINTER SETUP

This section outlines the procedures to setup your printer prior to its operation. The section includes precautions, loading media and ribbon, connecting cables, setting the operating environment of the printer and performing an online print test.

Setup Flow	Procedure	Reference
Installation	After referring to the Safety Precautions in this manual, install the printer in a safe and stable location.	2.1 Installation
Connecting the power cord	Connect a power cord to the power inlet of the printer, then to an AC outlet.	2.2 Connecting the Power Cord
Loading the media	Load a label stock or tag stock.	2.3.1 Loading the Media
Media sensor position alignment	Adjust the position of feed gap sensor or black mark sensor according to the media being used.	2.3.1 Loading the Media
Loading the ribbon	If using thermal transfer media then load the ribbon.	2.3.2 Loading the Ribbon
Connecting to a host computer	Connect the printer to a host computer or network.	2.4 Connecting the Cables to Your Printer
Turning the power ON	Turn on the printer power.	2.5 Turning the Printer ON/OFF
Printer setting	Set the printer parameters in the system mode.	2.6 Printer Setting
Installing the printer driver	If necessary, install the printer driver on your host computer.	2.7 Installing the Printer Drivers
Print test	Make a print test from your operating environment and check the print result.	2.8 Print Test
Position and Print Tone Fine adjustment	If necessary, fine adjust the print start position, cut/strip position, print tone, etc.	2.9 Position and Print Tone Fine Adjustment
Automatic threshold setting	If the print start position cannot be detected properly when pre-printed label are used, set the threshold automatically.	2.10 Threshold Setting
Manual threshold setting	If the print start position cannot be detected properly even after automatic threshold setting is performed manually set the threshold.	2.10 Threshold Setting

2.1 Installation

To insure the best operating environment and to assure the safety of the operator and equipment, please observe the following precautions.

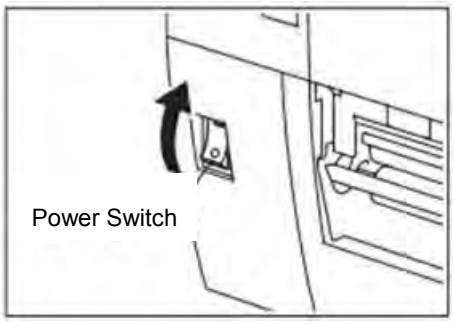
- Operate the printer on a stable, level surface in a location free from excessive humidity, high temperature, dust, vibration and direct sunlight.
- Keep your work environment static free. Static discharge can cause damage to delicate internal components.
- Make sure the printer is connected to a clean source of AC power and no other high-voltage devices, that may cause line noise interference, are connected to the same mains.
- Assure that the printer is connected to the AC mains with a three-prong power cable that has the proper ground (earth) connection.
- Do not operate the printer with the cover open. Be careful not to allow fingers or articles of clothing to get caught in any of the moving parts, especially the optional cutter mechanism.
- Make sure to turn off the power and remove the power cord whenever working inside the printer. For example when changing the ribbon, loading the media, or cleaning the printer.
- For best results, and longer printer life, use only TOSHIBA TEC recommended media and ribbons.
- Store the media and ribbons in accordance with their specifications.
- This printer mechanism contains high-voltage components; therefore you should never remove any of the covers of the machine as you may receive an electrical shock. Additionally, the printer contains many delicate components that may be damaged if accessed by unauthorized personnel.
- Clean the outside of the printer with a clean, dry cloth or a clean cloth slightly dampened with a mild detergent solution.
- Use caution when cleaning the thermal print head as it will become very hot while printing. Wait until it has had time to cool before cleaning. Use only the TOSHIBA TEC recommended print head cleaner to clean the print head.
- Do not turn off the printer power or remove the power plug while the printer is printing or while the ON LINE lamp is flashing.

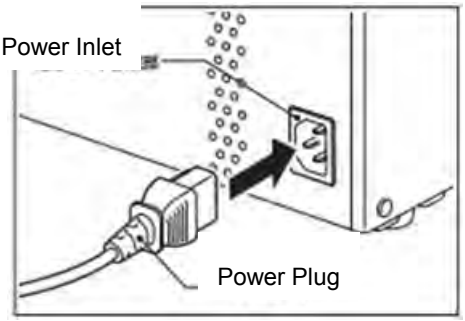
2.2 Connecting the Power Cord

CAUTION!

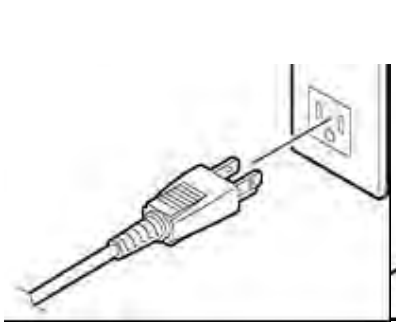
1. *Make sure that the printer Power Switch is turned to the OFF position (○) before connecting the Power Cord to prevent possible electric shock or damage to the printer.*
2. *Connect the Power Cord to a supply outlet with a properly grounded (earthed) connection.*

1. Make sure that the printer Power Switch is in the OFF (○) position. Connect the Power Cord to the printer as shown in the figure below.

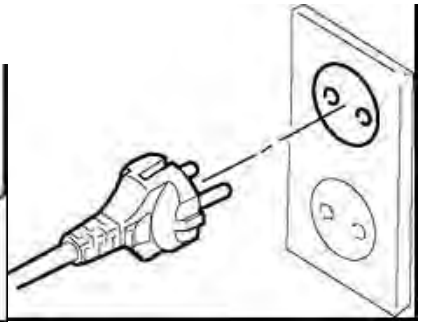




2. Plug the other end of the Power Cord into a grounded outlet as shown in the figure below.



[Example of US Type]



[Example of EU Type]

2.3 Loading Supplies

WARNING!

1. *Do not touch any moving parts. To reduce the risk of fingers, jewellery, clothing, etc., being drawn into the moving parts, be sure to load the media once the printer has stopped moving completely.*
2. *The Print Head becomes hot immediately after printing, allow it to cool before loading the media.*
3. To avoid injury, be careful not to trap your fingers while opening or closing the cover.

CAUTION!

1. *Be careful not to touch the Print Head Elements when lifting the Print Head Block. This may cause missing dots due to static electricity or other print quality problems.*
2. *When loading or replacing the media or ribbon, be careful not to damage the print head with hard objects like watches or rings.*



Care must be taken not to allow the metal or glass part of a watch to touch the print head edge.



Care must be taken not to allow a metal object like a ring to touch the print head edge.

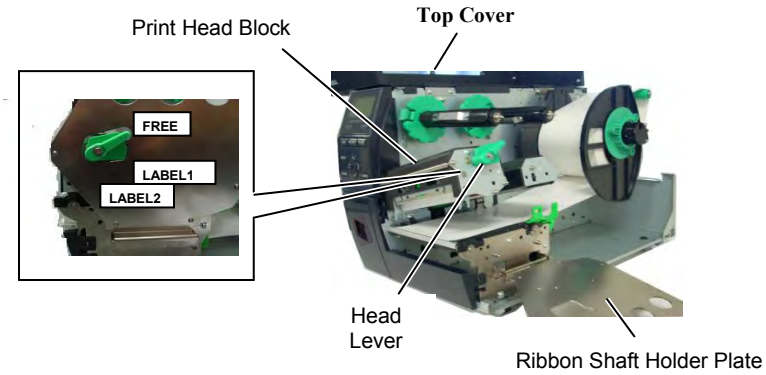
Since the print head element can be easily damaged by shock, please treat it carefully and do not hit it with hard objects.

2.3.1 Loading the Media

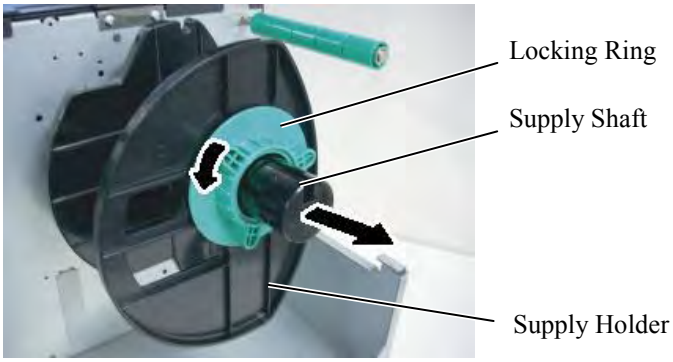
The following procedure shows the steps to properly load the media into the printer so that it feeds straight through the printer.

The printer prints both labels and tags.

1. Turn off the power and open the Top Cover.
2. Turn the Head Lever to the **FREE** position and release the Ribbon Shaft Holder Plate.
3. Open the Print Head Block.



4. Turn the Locking Ring counterclockwise and remove the Supply Holder from the Supply Shaft.



5. Put the media on the Supply Shaft.
6. Pass the media around the Guide Shaft, then pull the media towards the front of the printer.

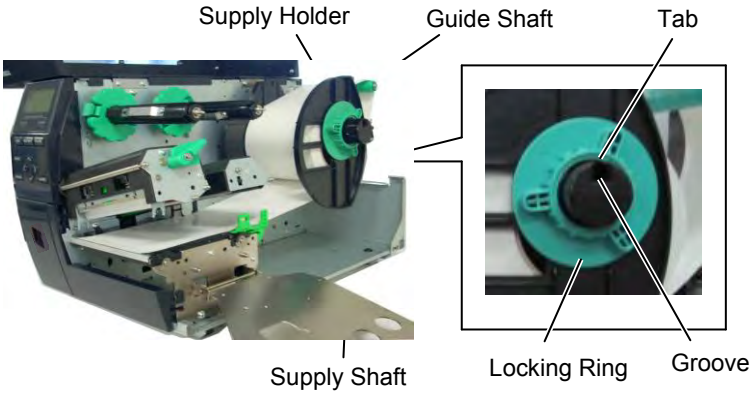
NOTES:

1. *When the Head Lever is turned to **FREE** position, the Print Head can be raised.*
2. *To enable printing the Head Lever must be set to the **LABEL2** position. (This ensures that the Print Head is closed.)*
   *However, proper position may differ depending on media. So **LABEL1** position is reserved.*
3. *Do not turn the Locking Ring on the supply holder counter-clockwise too far or it may come off the Supply Holder.*

2.3.1 Loading the Media (Cont.)

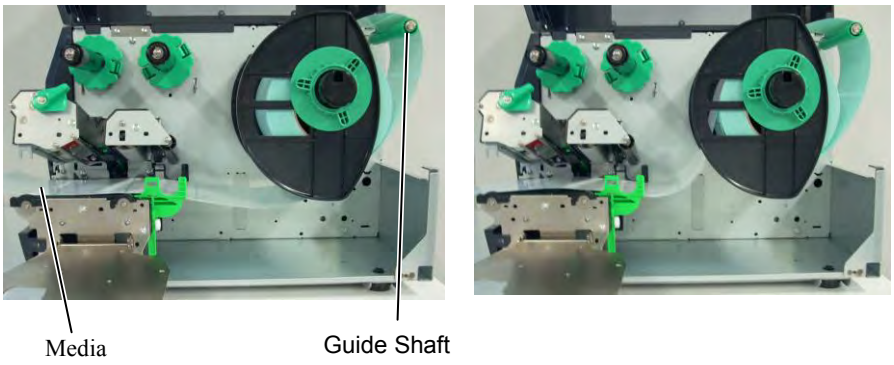
NOTE:
Do not over-tighten the Locking Ring of the Supply Holder.

7. Align the tab of the Supply Holder with the groove in the Supply Shaft, and push the Supply Holder against the media until the media is held firmly in place. This will centre the media automatically. Turn the Locking Ring clockwise to secure the Supply Holder.



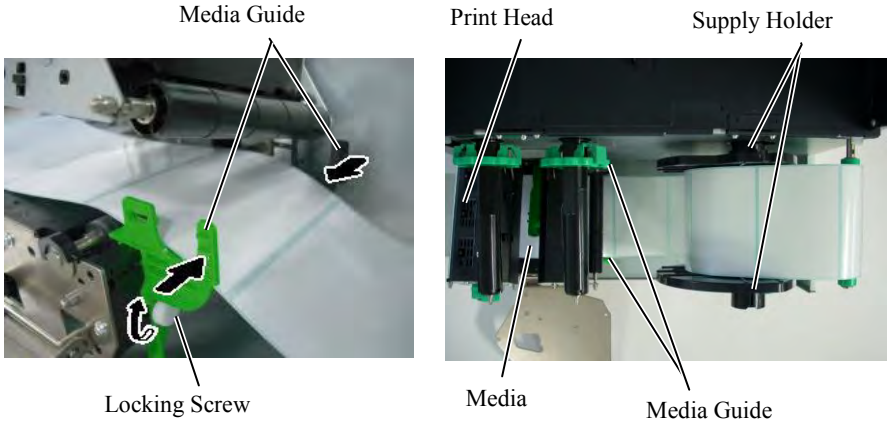
In the case of media which is inside wound.

In the case of media which is outside wound.



8. Place the media between the Media Guides and adjust them to the media width. Once in the correct position tighten the Locking Screw.

9. Check that the media's path through the printer is straight. The media should be centered under the Print Head.

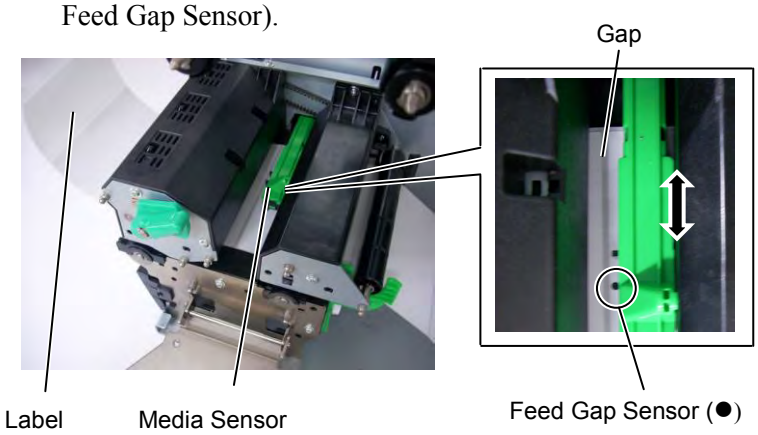


2.3.1 Loading the Media (Cont.)

10. Lower the Print Head Block.
11. Once the media is loaded it may be necessary to set the Media Sensors used to detect the start position for label or tag.

Setting the Feed Gap Sensor position

(1) Manually move the Media Sensor so that the Feed Gap Sensor is positioned at the centre of the labels. (● indicates the position of the Feed Gap Sensor).

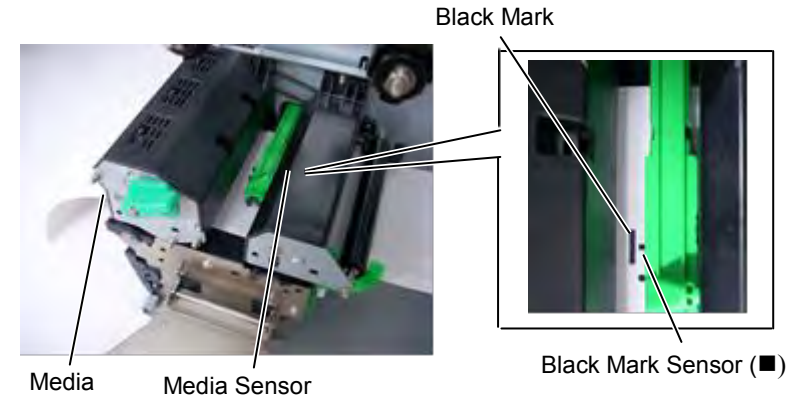


NOTE:

Be sure to set the black mark sensor to detect the centre of the black mark, otherwise a paper jam or no paper error may occur.

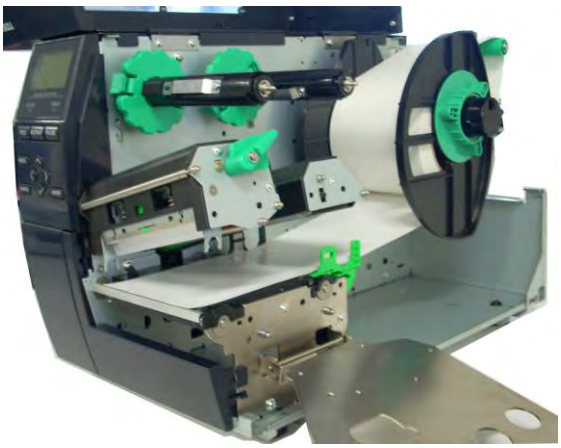
Setting the Black Mark Sensor position

(1) Pull about 500 mm of media out of the front of the printer, turn the media back on itself and feed it under the Print Head past the sensor so that the black mark can be seen from above.
(2) Manually move the Media Sensor so that the Black Mark Sensor is in line with the centre of the black mark on the media. (■ indicates the position of the Black Mark Sensor).



2.3.1 Loading the Media (Cont.)

12. Batch mode
In the batch mode, the media is continuously printed and fed until the number of labels/tags specified in the issue command have been printed.



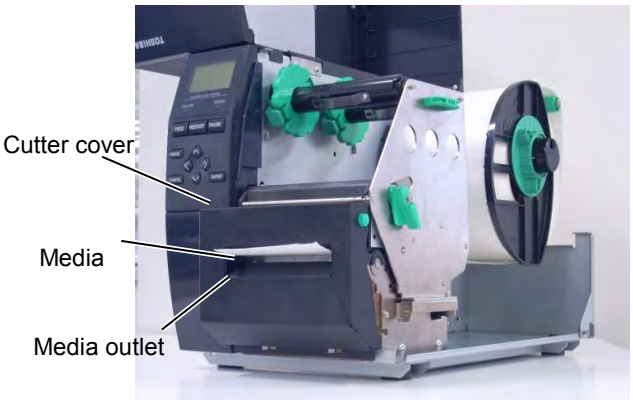
2.3.1 Loading the Media

- **When the cutter module is fitted:**

⚠WARNING!

The cutter blade is sharp, so care must be taken not to injure yourself when handling the cutter.

When the optional cutter module is fitted, insert the leading edge of the media into the cutter until it comes out the media outlet of the cutter cover. The media is automatically cut.

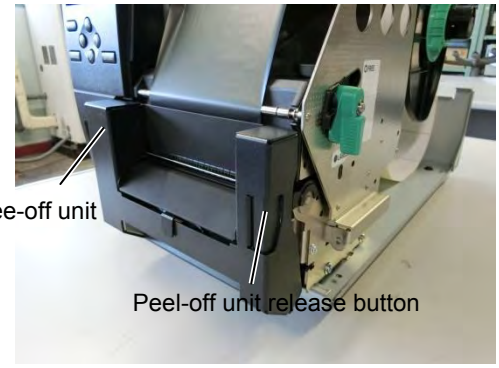


CAUTION:
1. Be sure to cut the backing paper of the label. Cutting labels will cause the glue to stick to the cutter, which may affect the cutter quality and shorten the cutter life.
2. Cutting tag paper whose thickness exceeds the specified value may affect the cutter life.

- **When the high-precision peel-off module is fitted:**

When the optional peel-off module is fitted, a label is automatically removed from the backing paper at the strip plate as each label is printed.

1. Press the peel-off unit release button to open the peel-off unit.



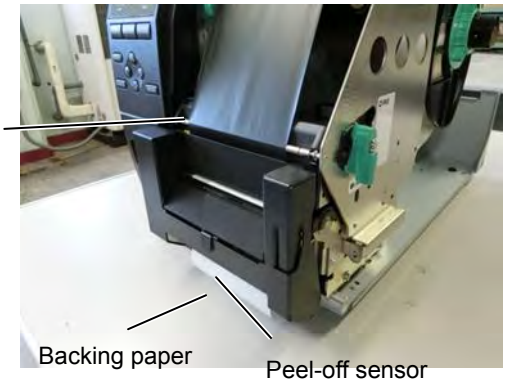
2. Remove enough labels from the leading edge of the media to leave 200mm of backing paper free.

3. Insert the leading edge of the backing paper under the backing paper feed roller.



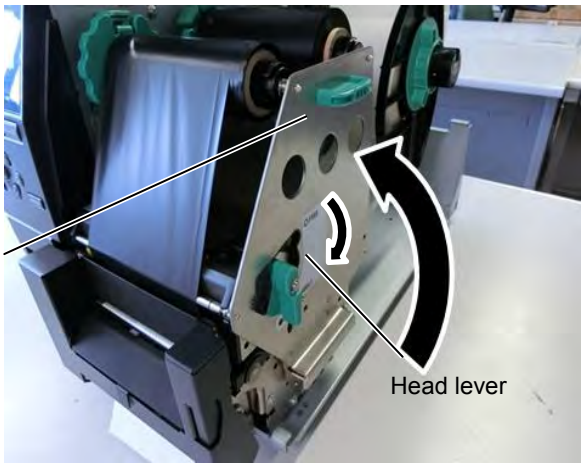


4. Close the peel-off unit until it clicks.



5. Manually move the peel-off sensor so that it is in line with the center of labels coming out of the media outlet. (Basically, align the sensor with the center of the media outlet)

6. Set the ribbon shaft holder plate and turn the head lever to LABEL2 position.



7. Close the top cover.



- **When the peel-off module is fitted:**

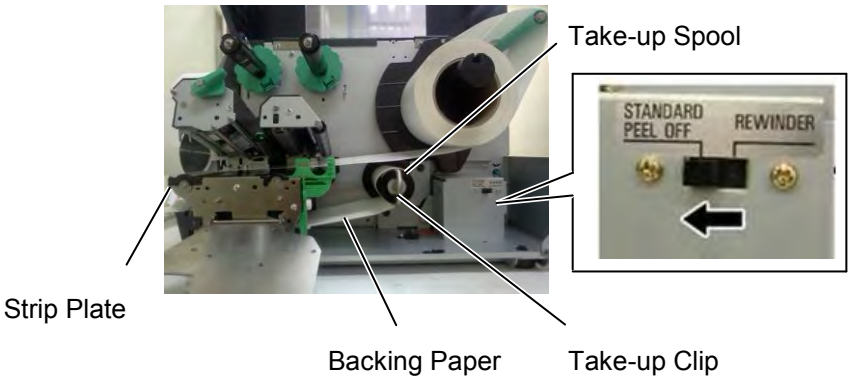
1. Remove enough labels from the leading edge of the media to leave 500mm of backing paper free.

2. Pull the backing paper out of the media outlet, then insert the leading edge of the backing paper under the strip plate.

3. Wind the backing paper onto the take-up spool and fix it in position with the take-up clip. (Wind the paper counterclockwise around the spool.)

4. Rotate the take-up spool counterclockwise a few times to remove any slack in the backing paper.

5. Set the selection switch mounted on the rewinder Ass'y to STANDARD PEEL OFF position.



NOTES:

1. *Be sure to set the selection switch to **STANDARD/PEEL OFF** position.*
2. *Fit the take-up clip so that the longer side of the clip is fitted into the shallow groove in the take-up spool.*
3. *Insert the take-up clip fully.*
4. *Backing paper can be wound directly onto the take-up spool or a paper core fitted on the take-up spool. When winding backing paper directly onto the Take-up spool, detach the spring plate from the take-up spool by removing the screw. Otherwise, it may be difficult to pull out the wound backing paper roll. Wind the backing paper onto the take-up spool two or three times, then fasten the backing paper with the take-upclip.*

   When using a paper core, put a core on the take-up spool without removing the sprint plate, and attach the leading edge of the backing paper to the core with adhesive tape. The take-up clip is not necessary.

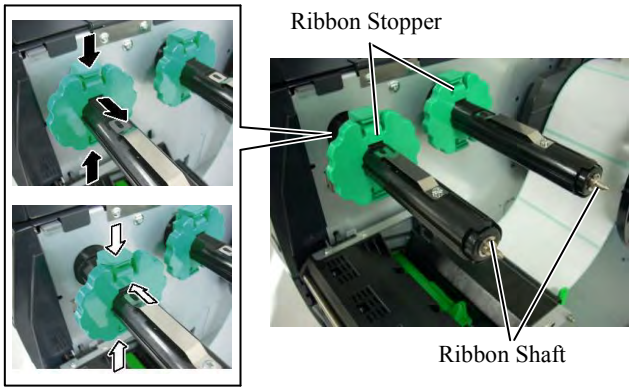
2.3.2 Loading the Ribbon

There are two types of media available for printing on: thermal transfer and direct thermal (which has a chemically treated surface). DO NOT LOAD a ribbon when using direct thermal media.

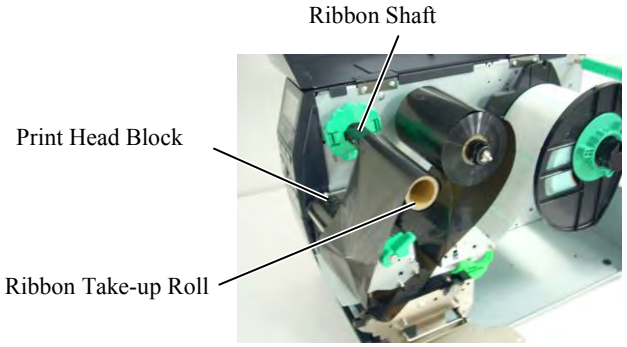
NOTES:

1. *When attaching the ribbon stoppers, make sure that the pinchers face into the printer*
2. *Be sure to remove any slack in the ribbon before printing. Printing with a wrinkled ribbon will reduce the print quality.*
3. *The Ribbon Sensor is mounted on the rear of the Print Head Block to detect a ribbon end. When a ribbon end is detected a "NO RIBBON" message will appear on the display and the ERROR LED will illuminate.*

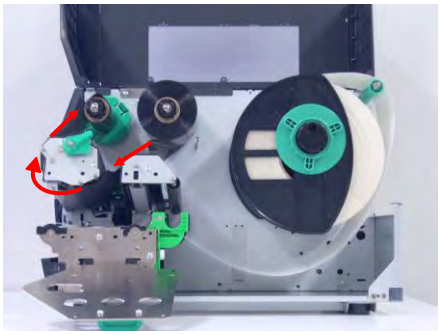
1. Grasp the tabs on the top and bottom of the Ribbon Stoppers and move them back to the end of the Ribbon Shaft.



2. Leaving plenty of slack between the ribbon spools, place the ribbon onto the Ribbon Shafts as shown below.

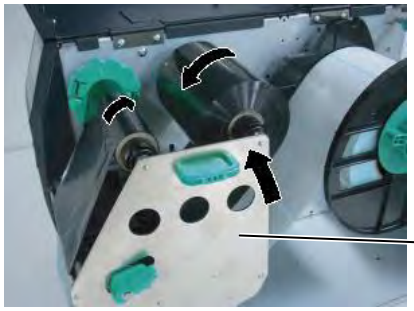


Ribbon path



2.3.2 Loading the Ribbon (Cont.)

3. Slide the Ribbon Stoppers along the Ribbon Shafts so that the ribbon will be centred when fitted.
4. Lower the Print Head Block and set the Ribbon Shaft Holder Plate aligning its holes with the Ribbon Shafts.
5. Take up any slack in the ribbon. Wind the leading tape onto the ribbon take-up roll until the ink ribbon can be seen from the front of the printer.



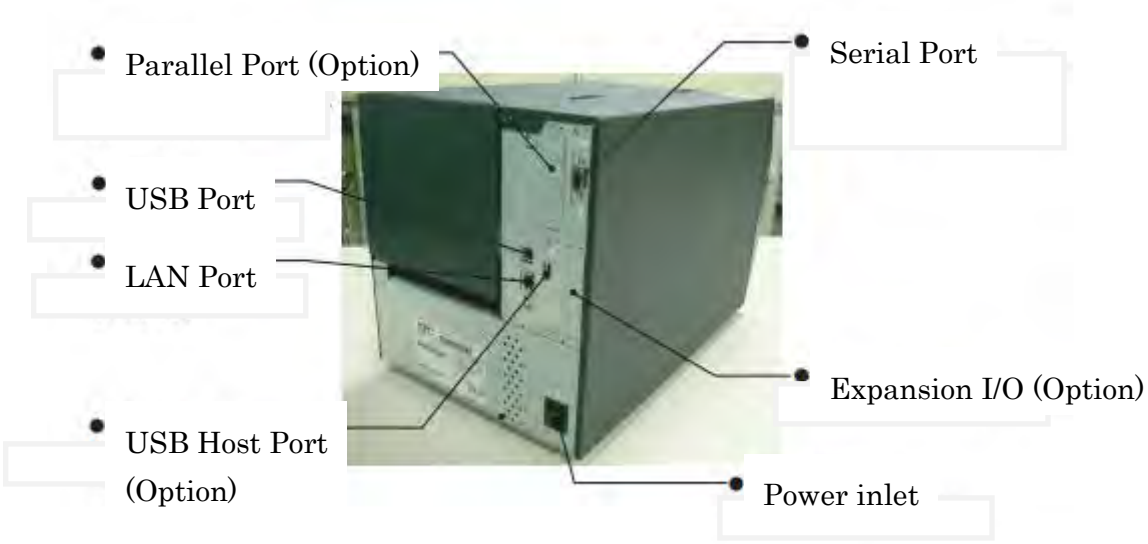
6. Turn the Head Lever to **Label2** position to close the Print Head.
7. Close the Top Cover.

2.4 Connecting the Cables to Your Printer

The following paragraphs outline how to connect the cables from the printer to your host computer, and will also show how to make cable connections to other devices. Depending on the application software you use to print labels, there are 4 ways to connect the printer to your host computer. These are:

- An Ethernet connection using the printer's standard LAN connector.
- A USB cable connection between the printer's standard USB connector and your host computer's USB port. (Conforming to USB 2.0)
- A serial cable connection between the printer's RS-232 serial connector and one of your host computer's COM ports.
- A parallel cable connection between the printer's optional parallel connector and your host computer's parallel port (LPT).

For details, refer to **APPENDIX 2**.



2.5 Turning the Printer ON/OFF

When the printer is connected to your host computer it is good practice to turn the printer ON before turning on your host computer and turn OFF your host computer before turning off the printer.

2.5.1 Turning ON the Printer

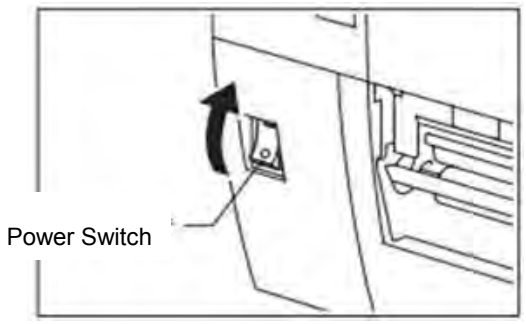
CAUTION!

Use the power switch to turn the printer On/Off. Plugging or unplugging the Power Cord to turn the printer On/Off may cause fire, an electric shock, or damage to the printer.

NOTE:

If a message other than ON LINE appears on the display or the ERROR LED lamp is illuminated.

1. To turn ON the printer power, press the Power Switch as shown in the diagram below. Note that (**|**) is the power ON side of the switch.



2. Check that the ON LINE message appears in the LCD Message Display and that the ON LINE and POWER LED lights are illuminated.

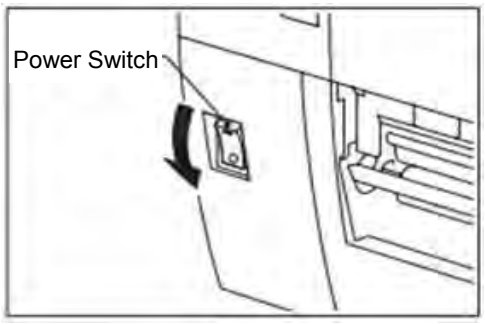
2.5.2 Turning OFF the Printer

CAUTION!

1. *Do not turn off the printer power while the media is being printed, as this may cause a paper jam or damage to the printer.*
2. *Do not turn off the printer power while the ON LINE lamp is blinking as this may cause damage to your computer.*

1. Before turning off the printer Power Switch verify that the ON LINE message appears in the LCD Message Display and that the ON LINE LED light is on and is not flashing.

2. To turn OFF the printer power press the Power Switch as shown in the diagram below. Note that (O) is the power OFF side of the switch.

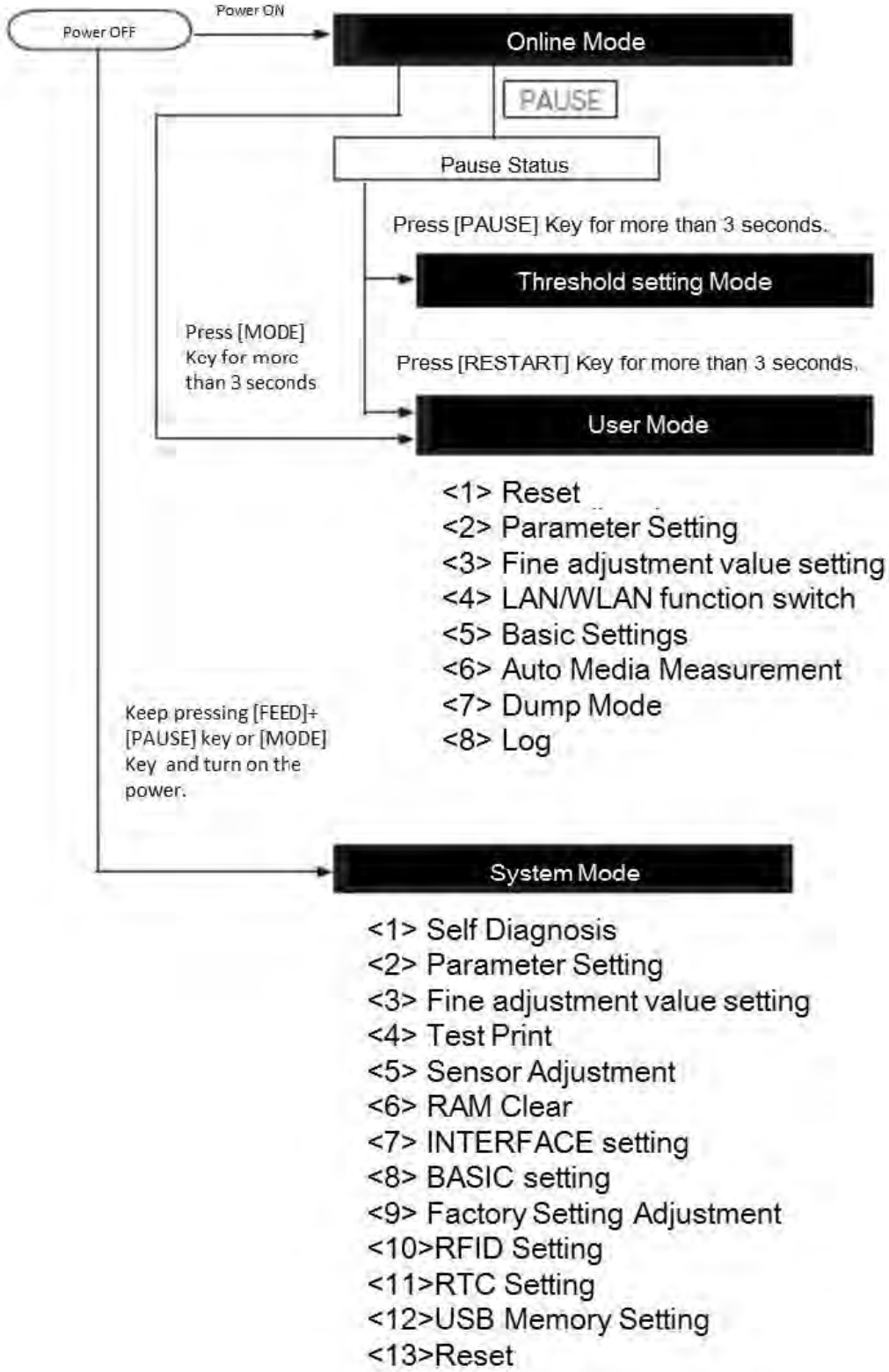


2.6 Key operations

This device has following modes described on the table shown on below.

Online Mode	Issues Labels and Tags by connecting with PC. In case of Printer error, Help function display error details, cause of error, how to fix the problem, and recovery method. Online Mode can be switched to Threshold Setting mode and User mode.
Threshold Setting Mode	This mode can be switched from Online status. This mode is a Threshold setting for pre-print Labels when using pre-print Label that can't detect Label position correctly with the normal media sensor threshold value.
User Mode	This mode can be switched from Online status. This mode have Basic program setting such as System mode and common menu, as well as resetting, modifies each parameter setting details and each fine adjustment setting details. User mode also features auto media measurement, outputting dump list of transmission buffer, switches LAN and Save Printer log.
System Mode	This mode is used for Self-diagnosis, each parameter settings, each fine adjustment value settings, test print, sensor adjustment, RAM clear, Interface settings, Basic program setting and RTC settings. System mode also saves parameter setting values, external character, command data to connected USB memory, and register the saved contents from USB memory to the Printer.

Key Operations: diagram

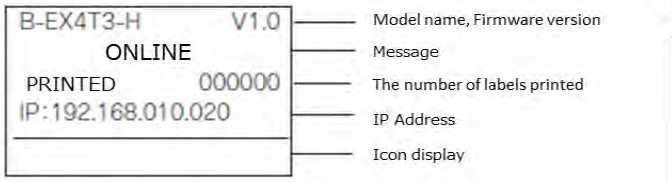
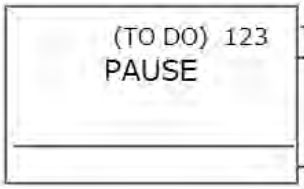
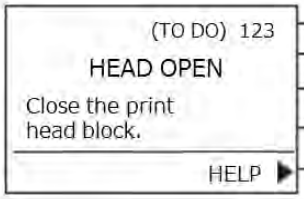


2.7 Online mode function

Online mode issues media. If Printer error occurs, Help function enable to display error details, error cause, Troubleshooting, and recover method.

Online mode also switches “USER mode” and “Threshold setting mode”.

Online mode Screen and Key functions

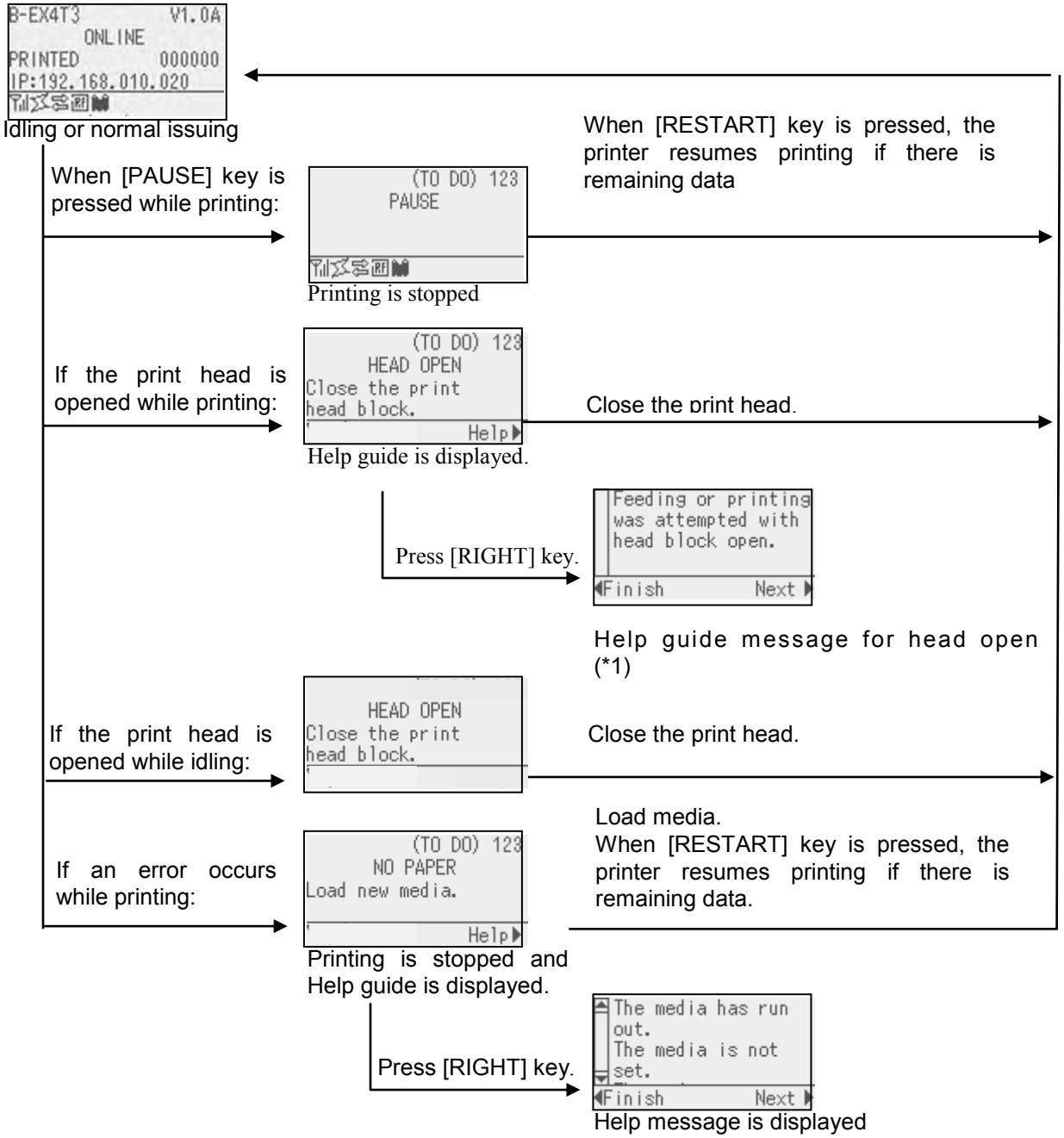
Printer Status	Screen display example	Display contents
Online		Model name, Firmware version Message The number of labels printed IP Address Icon display
Pause		The number of remaining labels to print Message Icon display
Error (example: Head Open)		The number of remaining labels to print Message 1st line of the error message 2nd line of the error message Icon display

Key	Function
[FEED]	(1) Feeding 1 media. This key is also used for discharging 1 media.
	(2) Issues 1 content in Image buffer (Depends on Parameter setting) While issuing by pressing [FEED] key, do not send clear command or drawing display from the Host or Print contents collapses. Please note that issue with [FEED] key while drawing in image buffer, print contents may collapses.
	*[FEED] key will be fed with applying last issued conditions. If media is different from the last one, media setting from PC is necessary. *At peeling issue, media will be fed regardless of label is in the media insertion slot or not. *If Media load is enabled, media loading will be performed depends on the condition.
[RESTART]	(1) Re-issuing of temporarily paused label issue and issue after errors.
	(2) Reset the printer to default status.
	(3) Uses when switch from Pause status to User mode.
[PAUSE]	(1) Pauses media issue temporarily.
	(2) Uses when switch from Pause status to Threshold setting mode.
[MODE]	Uses when switch from Idle status to User mode.
[CANCEL]	Clears print job.
[>]	Displays Help screen.

- Icon
  With Online mode, 2 types of Icons will be displayed to last lines on the screen.

Data Receive Icon	
	Icon will be displayed whether there is a print job.
Ribbon Near End Icon	
	Icon blinks when Ribbon is near end. Blink: Ribbon Near end status *Remaining ribbon length can be selected with parameter setting, either 30m or 70m.

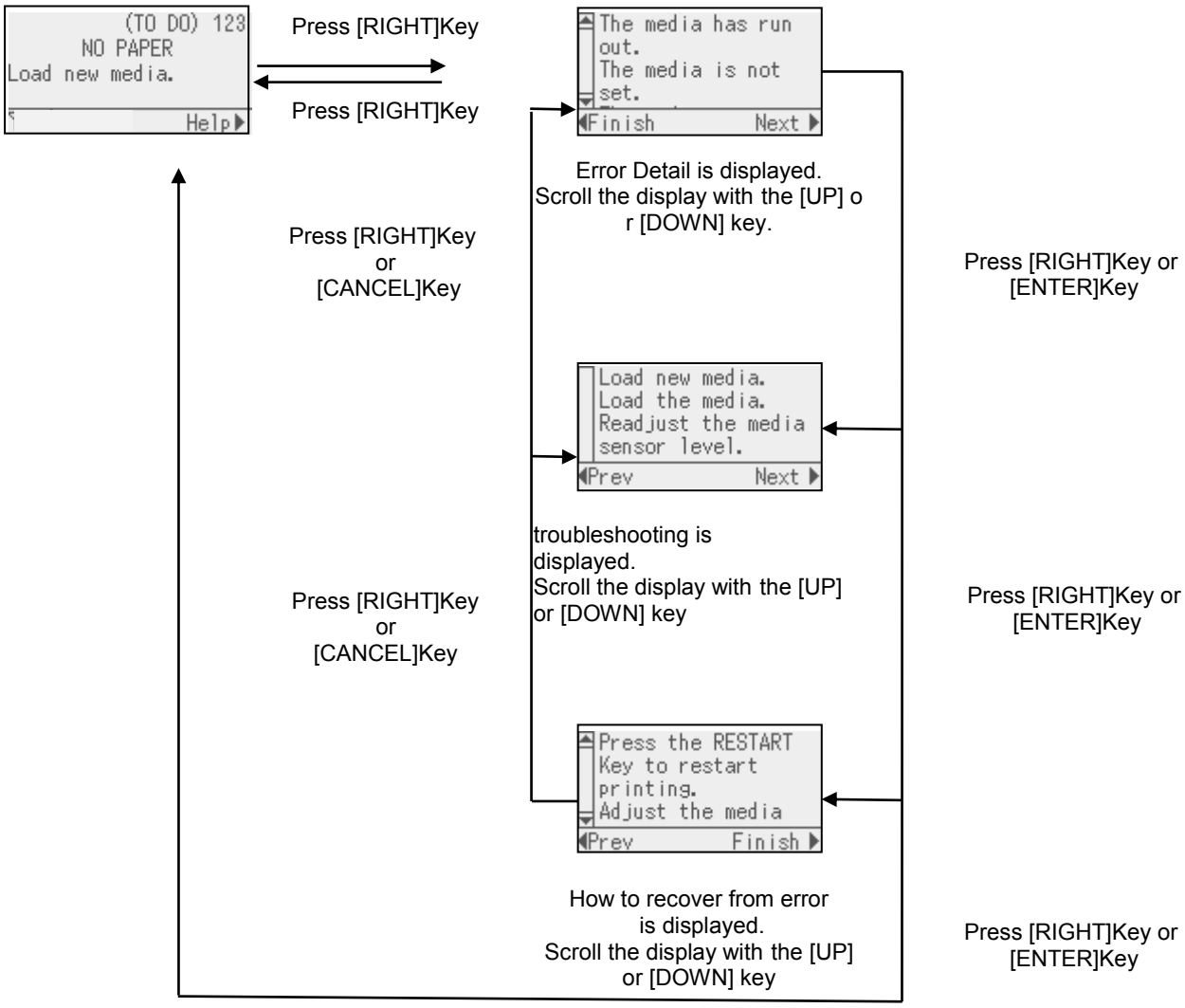
Online mode operation example



Help screen operation example

Help screen comes with 3 screens – “Error details”, “Troubleshooting”, and “Recovery from error”.

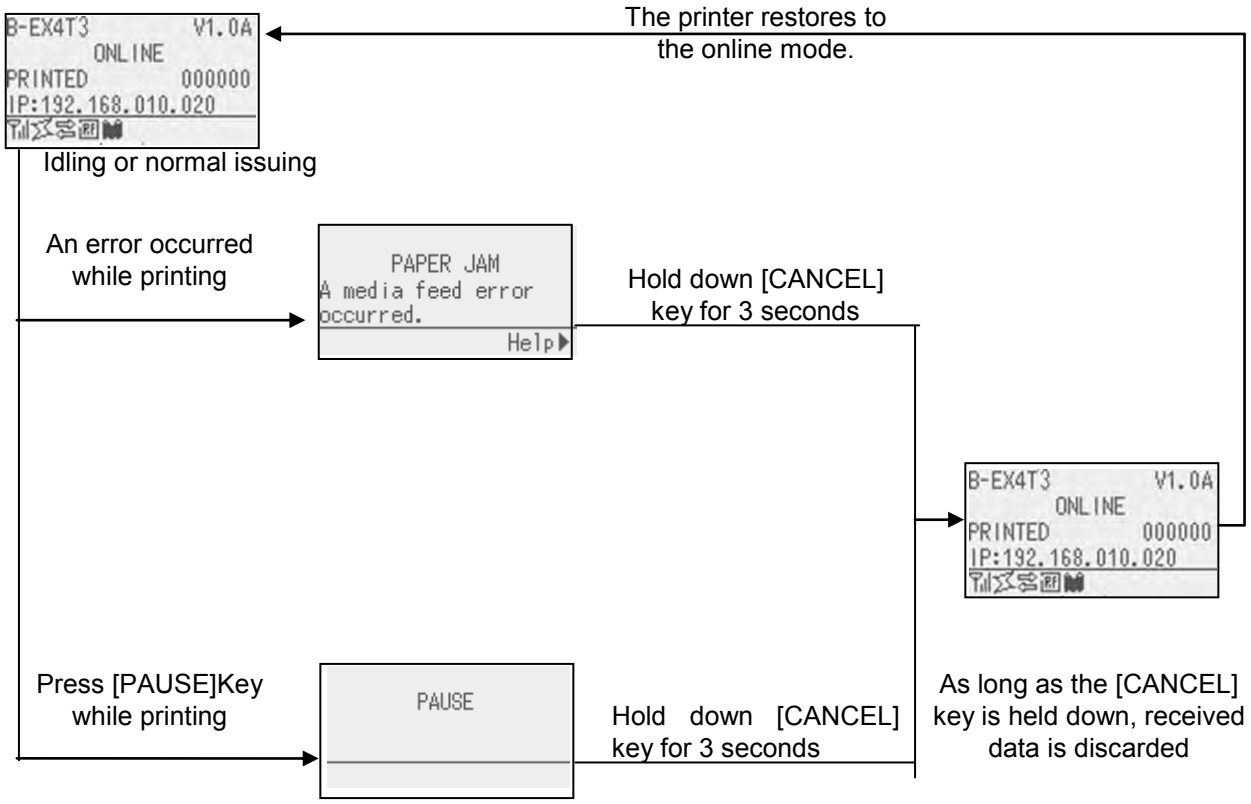
When Help guide exceeds more than 4 lines, up/down arrow appears on scroll bar.
Up/Down arrow key enable to scroll the screen.



Job Cancel operation example

[CANCEL] key on the Printer enables cancelling issues.

Press [CANCEL] key for 3 seconds while printer is in error or pause status. Printer will speed reset to switch to the online mode, then discard all the data in transmission buffer while pressing [CANCEL] key. When [CACEL] key is de-pressed, Job cancel finishes and printer will recover to the normal status.

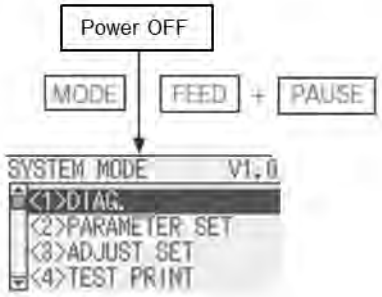


Note: [CANCEL] key is de-pressed before discarding all the received data while cancelling the job, command error may occur.

2.8 SYSTEM MODE FUNCTION

System mode has several functions, such as “self-diagnosis”, “each parameter setting”, ”fine adjustment setting”, “test print”, “sensor adjustment”, “RAM clear”, “IP address setting”, and “basic setting”.

System mode transition



(1) Press [FEED][PAUSE] key or press [MODE] key to turn the power on.

(2) Switches to the System mode. Select menu with Up/Down arrow key.

● List of system mode menu

No.	Menu	Overview
<1>	Self-Diagnosis	Prints Self-diagnosis result and maintenance counter/parameter setting value, and conducts print head disconnection checking
<2>	Parameter setting	Sets parameter for each function of the printer.
<3>	Fine adjustment value setting	Adjusts Print start position, cut position, and printing density. Please refer to the “fine adjustment setting” in User mode.
<4>	Test print	Test print tilt line, character and barcode.
<5>	Sensor adjustment	Displays outside temperature and adjust each media sensor.
<6>	RAM clear	Clears maintenance counter and parameter to default value.
<7>	INTERFACE setting	Set the parameter setting of interface such as Network, USB, RS-232C, and Parallel.
<8>	BASIC setting	Sets the features when using downloading BASIC program to the printer
<9>	Factory default adjustment	Adjustment menu at factory process. Therefore operation example is not described.
<10>	RFID setting	Sets RFID parameter. This device is not applicable on this model.
<11>	RTC setting	Sets Date/Time and the timing of reflecting time at the time of printing.
<12>	USB memory operation	Download the firmware saved in USB memory and copies printer information to the USB memory.
<13>	Reset	Restart the printer. Please refer to the [Reset] in user mode.

2.9 Printer Drivers

Once you install the TOSHIBA printer driver on your Windows host computer, you can use the TOSHIBA bar code printer in the same way you would a laser or ink jet printer.
You can use the printer by connecting a USB or LAN cable to your host computer.

The installation procedure of the printer driver differs depending on the printer model and the connection method.
The Printer driver and installation manual can be downloaded from the Toshiba TEC Web-site

http://www.toshibatec-ris.com/products/barcode/download/driver_agreement.html

If an older version of the printer driver has been already installed, you must uninstall it and restart the computer before installing a newer version.

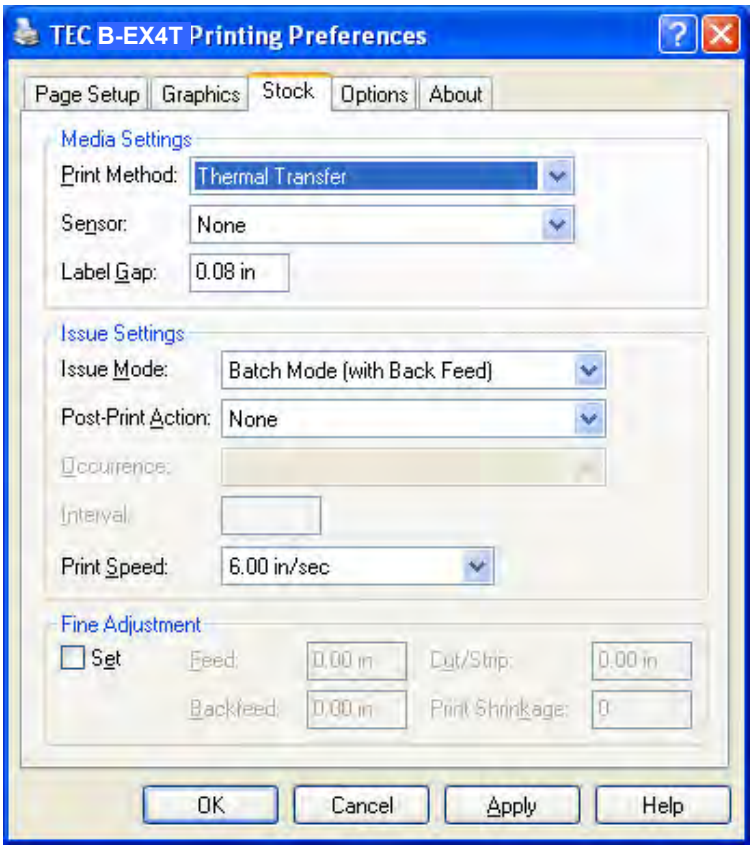
2.10 Print Test

After your drivers have been installed , perform a print test.

Performing a print test using the Printer Driver

The printer driver's Properties screen allows you to set the communication conditions, media size, and other printing conditions in accordance with your operating environment. For details, refer to the **Help for the Windows Printer Drivers** screen.

Example: Stock tab display of the Printer Driver's Properties Screen



Print Method:	Direct thermal or thermal transfer is selectable.
Sensor:	Media sensor type is selectable.
Issue Mode:	Batch, strip or cut is selectable.
Post-print Action:	Whether to use the cutter or not is selectable.
Fine Adjustment:	Adjustment values for the feed amount, cut/strip position, etc. can be set.

3. MAINTENANCE

WARNING!

1. *Be sure to disconnect the power cord before performing maintenance. Failure to do this may cause an electric shock.*
2. *To avoid injury, be careful not to pinch your fingers while opening or closing the cover and print head block.*
3. *The print head becomes hot immediately after printing. Allow it to cool before performing any maintenance.*
4. *Do not pour water directly onto the printer.*

3.1 Cleaning

This chapter describes how to perform routine maintenance.
To ensure the continuous high quality operation of the printer, you should perform a regular maintenance routine. For high usage it should be done on a daily basis. For low usage it should be done on a weekly basis.

To maintain the printer performance and print quality, please clean the printer regularly, or whenever the media or ribbon is replaced.

1. Turn off the power and unplug the printer.
2. Open the Top Cover.
3. Turn the Head Lever to the "**FREE"** position, and then release the Ribbon Shaft Holder Plate.
4. Open the Print Head Block.
5. Remove the ribbon and media.

3.1.1 Print Head/Platen/Sensors

CAUTION!

1. *Do not use any volatile solvent including thinner and benzene, as this may cause discoloration to the cover, print failure, or breakdown of the printer.*
2. *Do not touch the Print Head Element with bare hands, as static may damage the Print Head.*

CAUTION!

When cleaning the print head, be careful not to damage the print head with hard objects like watches or rings.



Care must be taken not to allow the metal or glass part of a watch to touch the print head edge.

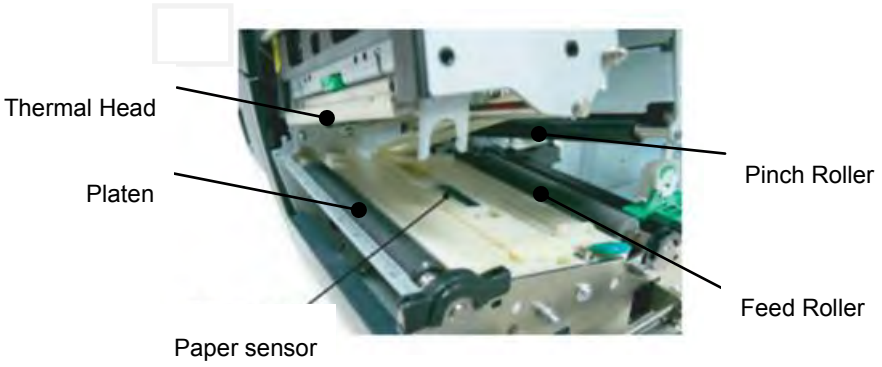


Care must be taken not to allow a metal object like a ring to touch the print head edge.

3.1.1 Print Head/Platen/ Sensors (Cont.)

> ***NOTE:***
> Please purchase the Print Head Cleaner from your authorised TOSHIBA TEC service representative.

6. Clean the Print Head Element with a Print Head Cleaner or a cotton swab or soft cloth slightly moistened with alcohol.



7. Wipe the Platen, Feed Roller, and Pinch Roller with a soft cloth slightly moistened with alcohol. Remove dust or foreign substances from the internal parts of the printer.

8. Wipe the Feed Gap Sensor and Black Mark Sensor with a dry soft cloth.

3.1.2 Covers and Panels

> ***CAUTION!***
> 1. *DO NOT POUR WATER directly onto the printer.*
> 2. *DO NOT APPLY cleaner or detergent directly onto any cover or panel.*
> 3. *NEVER USE THINNER OR OTHER VOLATILE SOLVENT on the plastic covers.*
> 4. *DO NOT clean the panel, covers, or the supply window with alcohol as it may cause them to discolour, lose their shape or develop structural weakness.*

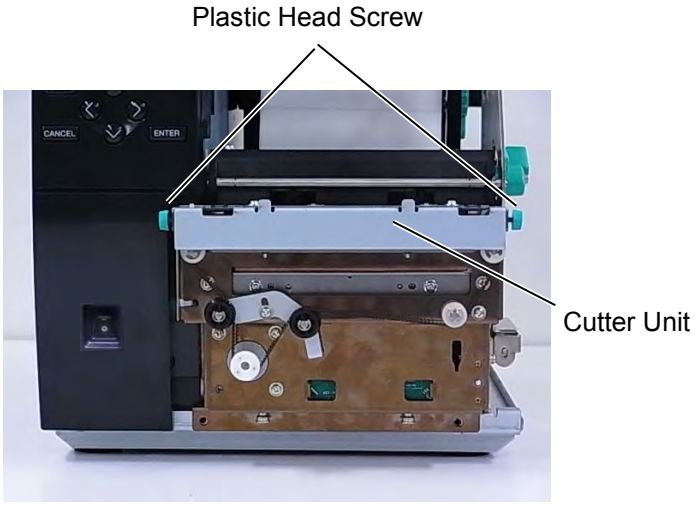
Wipe the covers and panels with a dry soft cloth or a cloth slightly moistened with a mild detergent solution.

3.1.3 Optional Cutter Module

WARNING!
1. ***Be sure to turn the power off before cleaning the Cutter Module.***
2. ***As the cutter blade is sharp, care should be taken not to injure yourself while cleaning.***

The disc cutter are available as an option.

1. Loosen the two Plastic Head Screws to remove the Cutter Cover.
2. Remove the jammed paper.
3. Clean the Cutter with a soft cloth slightly moistened with alcohol.
4. Attach the Cutter Cover.



4. PRINTER SPECIFICATIONS

This section describes the printer specifications.

Item \ Model		B-EX4T3-HS12-QM/CN-R
Dimension (W x D x H)		278 mm x 460 mm x 310 mm (10.9" x 18.1" x 12.2")
Weight (kg)		17 kg
Operating temperature range		5 degC to 40 degC (40 degF to 104 degF)
Relative humidity		25% to 85% RH (no condensation)
Power supply		Universal switching power source AC 100 V to 240 V, 50/60 Hz +/- 10%
Input voltage		AC100 V to 240 V, 50/60 Hz +/- 10%
Power Consumption	During a print job*	110W
	During stand-by	15W or less
	During sleep mode	4.7W
Resolution		600 dpi (23.6 dots/mm)
Printing method		Thermal transfer
Printing speed		50.8 mm/sec. (2 inches/sec.) 76.2 mm/sec. (3 inches/sec.) 101.6 mm/sec. (4 inches/sec.) 127.0 mm/sec. (5 inches/sec.) 152.4 mm/sec. (6 inches/sec.)
Available media width (including backing paper)		25.0 mm to 110 mm (0.98 inches to 4.33 inches)
Effective print width (max.)		104.0 mm (4.1 inches)
Issue mode		Batch Strip (Strip mode is enabled only when the optional Strip Module is installed.) Cut (Cut mode is enabled only when the optional Cutter Module is installed.)
LCD Message display		Graphic type 128 x 64 dots

*: While 20% slant lines are printed in the specified format.

Item \ Model	B-EX4T3-HS12-QM/CN-R
Bar code types	JAN8, JAN13, EAN8, EAN8+2 digits, EAN8+5 digits, EAN13, EAN13+2 digits, EAN13+5 digits, UPC-E, UPC-E+2 digits, UPC-E+5 digits, UPC-A, UPC-A+2 digits, UPC-A+5 digits, MSI, ITF, NW-7, CODE39, CODE93, CODE128, EAN128, Industrial 2 to 5, Customer Bar Code, POSTNET, KIX CODE, RM4SCC (ROYAL MAIL 4 STATE CUSTOMER CODE), GS1 DataBar
Two-dimensional code	Data Matrix, PDF417, QR code, Maxi Code, Micro PDF417, CP Code
Font	Times Roman (6 sizes), Helvetica (6 sizes), Presentation (1 size), Letter Gothic (1 size), Prestige Elite (2 sizes), Courier (2 sizes), OCR (2 types), Gothic (1 size), Outline font (4 types), Price font (3 types) 24 x 24 Simp-Chinese font , 16x16、24x24、32x32、48x48 Gothic- Japanese Font
Rotations	0, 90, 180, 270 deg
Standard interface	USB interface Serial interface LAN interface
Optional interface	Parallel interface (B-EX700-CEN-QM-R) Expansion I/O interface (B-EX700-IO-QM-R) USB host interface (B-EX700-RTC-QM-R)

NOTES:

- *Data Matrix™ is a trademark of International Data Matrix Inc., U.S.*
- *PDF417™ is a trademark of Symbol Technologies Inc., US.*
- *QR Code is a trademark of DENSO CORPORATION.*
- *Maxi Code is a trademark of United Parcel Service of America, Inc., U.S.*

5. TROUBLESHOOTING

This chapter lists the error messages, possible problems, and their solutions.

WARNING!
If a problem cannot be solved by taking the actions described in this chapter, do not attempt to repair the printer. Turn off and unplug the printer, then contact an authorised TOSHIBA TEC service representative for assistance.

5.1 Error Messages

NOTES:
- If an error is not cleared by pressing the [RESTART] key, turn the printer off and then on.
- After the printer is turned off, all print data in the printer is cleared.

Error Messages	Problems/Causes	Solutions
HEAD OPEN	The Print Head Block is opened in Online mode.	Close the Print Head Block.
	Feeding or printing has been attempted with the Print Head Block open.	Close the Print Head Block. Then press the **[RESTART]** key.
COMMS ERROR	A communication error has occurred.	Make sure the interface cable is correctly connected to the printer and the host and the host is turned on.
PAPER JAM	1. The media is jammed in the media path. The media is not fed smoothly.	1. Remove the jammed media, and clean the Platen. Reload the media correctly. Press the **[RESTART]** key. ⇒ **Section 5.3.**
	2. The media is not loaded properly.	2. Reload the media correctly. Then press the **[RESTART]** key. ⇒ **Section 2.3**.
	3. Wrong Media Sensor is selected for the media being used.	3. Turn the printer off and then on. Select the Media Sensor for the media type being used. Resend the print job.
	4. The Black Mark Sensor is not correctly aligned with the Black Mark on the media.	4. Adjust the sensor position, then press the **[RESTART]** key. ⇒ **Section 2.3.1**.
	5. Size of the loaded media is different from the programmed size.	5. .Replace the loaded media with one that matches the programmed size, press the **[RESTART]** key, or turn the printer off and then on, select a programmed size that matches the loaded media. Resend the print job.
	6. Media sensor has not been properly calibrated for the media being used.	6. Refer to **Section 2.10** to set the threshold. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative.

5.1 Error Messages (Cont.)

Error Messages	Problems/Cause	Solutions
CUTTER ERROR (Only when the cutter module is installed on the printer.)	1. The media is jammed in the cutter.	1. Remove the jammed media. Press the **[RESTART]** key. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative. ⇒ **Section 4.1.3**.
	2. The Cutter Cover is not attached properly.	2. Attach the Cutter Cover properly.
NO PAPER	1. The media has run out.	1. Load new media. Press the **[RESTART]** key. ⇒ **Section 2.3.1**.
	2. The media is not loaded properly.	2. Reload the media correctly. Press the **[RESTART]** key. ⇒ **Section 2.3.1.**
	3. The media sensor position has not been adjusted properly.	3. Adjust the sensor position. Press the **[RESTART]** key. ⇒ **Section 2.3.1**.
	4. Media sensor has not been properly calibrated for the media being used.	4. Refer to **Section 2.10** to set the threshold. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative.
	5. The media is slack.	5. Take up any slack in the media.
RIBBON ERROR	1. The ribbon is not fed properly.	1. Remove the ribbon and check the status of the ribbon. Replace the ribbon if necessary. If the problem is not solved, turn off the printer, and call a TOSHIBA TEC authorised service representative.
	2. The ribbon is not loaded.	2. Load a ribbon. ⇒ **Section 2.3.2**
	3. The ribbon sensor has a problem.	3. Turn off the printer and call a TOSHIBA TEC authorised service representative.
NO RIBBON	The ribbon has run out.	Load a new ribbon. Press the [RESTART] key. ⇒ **Section 2.3.2.**
REWIND FULL	The Built-in Rewinder Unit is full.	Remove the backing paper from the Built-In Rewinder Unit. Press the **[RESTART]** key.
EXCESS HEAD TEMP	The Print Head has overheated.	Turn off the printer and allow it to cool down for about 3 minutes. If this does not solve the problem call a TOSHIBA TEC authorised service representative.
HEAD ERROR	There is a problem with the Print Head.	Replace the Print Head.
POWER FAILURE	A momentary power failure has occurred.	Check that the power source, which supplies power to the printer, is the correct rating. If the printer shares the same power outlet with other electrical appliances that consume large amounts of power, use a different outlet.

5.1 Error Messages (Cont.)

Error Messages	Problems/Cause	Solutions
SYSTEM ERROR	1. The printer is used in a location where it is subject to noise or there are power cords from other electrical appliances near the printer or interface cables.	1. Keep the printer and the interface cables away from the source of noise
	2. The Power Cord of the printer is not grounded.	2. Ground the Power Cord.
	3. The printer shares the same power source with any other electrical appliances.	3. Provide an exclusive power source for the printer.
	4. An application software used on your host computer has an error or malfunction.	4. Confirm the host computer operates properly.
MEMORY WRITE ERR.	An error has occurred in writing to the flash ROM/USB memory.	Turn the printer off, and then on again.
FORMAT ERROR	An error has occurred in formatting the flash ROM/USB memory.	Turn the printer off, and then on again.
MEMORY FULL	Saving failed because of insufficient storage space in the flash ROM/USB memory.	Turn the printer off, and then on again.
EEPROM ERROR	Data cannot be read-from or written-to a backup EEPROM properly.	Turn the printer off, and then on again.
LOW BATTERY	The voltage of the Real Time Clock Battery is low.	If you wish to keep using the same battery even after "LOW BATTERY" error occurs, turn off the printer and start it in the system mode, set the date and time for the RTC and reset the printer. As long as the power is on the date and time will be correct. Call a TOSHIBA TEC authorized service representative to replace the battery.
SYNTAX ERROR	While the printer is in the Download mode for upgrading the firmware, it receives an improper command, for example, an Issue Command.	Turn the printer off, and then on again.
PASSWORD INVALID Please Power OFF	A wrong password was entered three consecutive times.	Please consult the system administrator.
Other error messages	A hardware or software problem may have occurred.	Turn the printer off and then on. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative.

5.2 Possible Problems

This section describes problems that may occur when using the printer, and their causes and solutions.

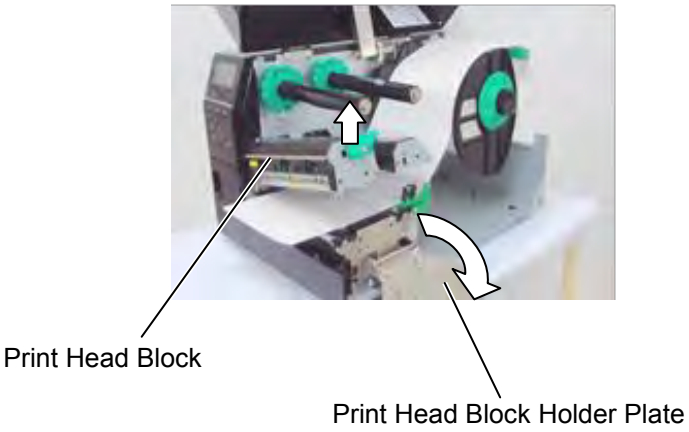
Possible Problems	Causes	Solutions
The printer will not turn on.	1. The Power Cord is disconnected.	1. Plug in the Power Cord.
	2. The AC outlet is not functioning correctly.	2. Test with a power cord from another electrical appliance.
	3. The fuse has blown, or the circuit breaker has tripped.	3. Check the fuse or circuit breaker.
The media will not feed.	1. The media is not loaded properly.	1. Load the media properly. ⇒ Section 2.3.1.
	2. The printer is in an error condition.	2. Solve the error in the message display. (See Section 5.1 for more detail.)
Pressing the [FEED] key in the initial state results in an error.	A feed was attempted contrary to the following default conditions. Sensor type: Feed gap sensor Printing method: Thermal transfer Media pitch: 76.2 mm	Change the print condition by using the printer driver or a print command so that it corresponds to your printing conditions. Clear the error state by pressing the [RESTART] key.
Nothing is printed on the media.	1. The media is not loaded properly.	1. Load the media properly. ⇒ Section 2.3.1.
	2. The ribbon is not loaded properly.	2. Load the ribbon properly. ⇒ Section 2.3.2.
	3. The print head is not installed properly.	3. Install the print head properly and close the Print Head Block.
	4. The combination of the ribbon and media is not correct.	4. Select an appropriate ribbon for the media type being used.
The printed image is blurred.	1. The combination of the ribbon and media is not correct.	1. Select an appropriate ribbon for the media type being used.
	2. The Print Head is not clean.	2. Clean the print head using the Print Head Cleaner or a cotton swab slightly moistened with ethyl alcohol.
The cutter does not cut.	1. The Cutter Cover is not attached properly.	1. Attach the Cutter Cover properly.
	2. The media is jammed in the Cutter.	2. Remove the jammed paper. ⇒ Section 5.3.
	3. The cutter blade is dirty.	3. Clean the cutter blade. ⇒ Section 4.1.3.
The Strip Module does not remove labels from the backing paper.	Label stock is too thin or the glue is too sticky.	1. Refer to Section 6.1 Media and change the label.
		2. Set the Pre Peel function to ON. ⇒Section 2.6.2.

5.3 Removing Jammed Media

This section describes, in detail, how to remove jammed media from the printer.

> ***CAUTION!***
> *Do not use any tool that may damage the Print Head.*

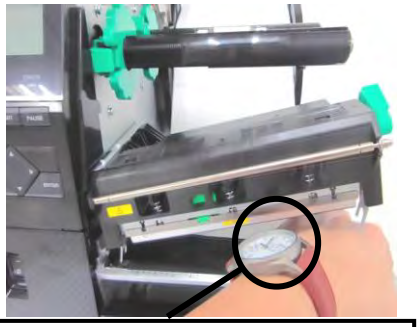
1. Open the Top Cover.
2. Turn the Head Lever to **FREE** position, then open the Print Head Block Holder Plate.
3. Open the Print Head Block.
4. Remove the ribbon and media.



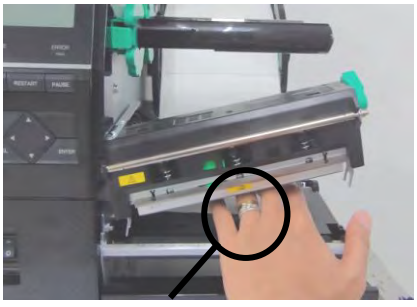
5. Remove the jammed media from the printer. DO NOT use any sharp implements or tools as these could damage the printer.
6. Clean the Print Head and Platen, then remove any further dust or foreign substances.
7. Paper jams in the Cutter Unit can be caused by wear or residual glue from label stock on the cutter. Do not use non-specified media in the cutter.

> ***NOTE:***
> *If you get frequent jams in the cutter, contact a TOSHIBA TEC authorized service representative.*

> ***CAUTION!***
> *When removing the jammed media, be careful not to damage the print head with hard objects like watches or rings.*



Care must be taken not to allow the metal or glass part of a watch to touch the print head.



Care must be taken not to allow a metal object like a ring to touch the print head.

Since the print head element can be easily damaged by shock, please treat it carefully and do not hit it with hard objects.

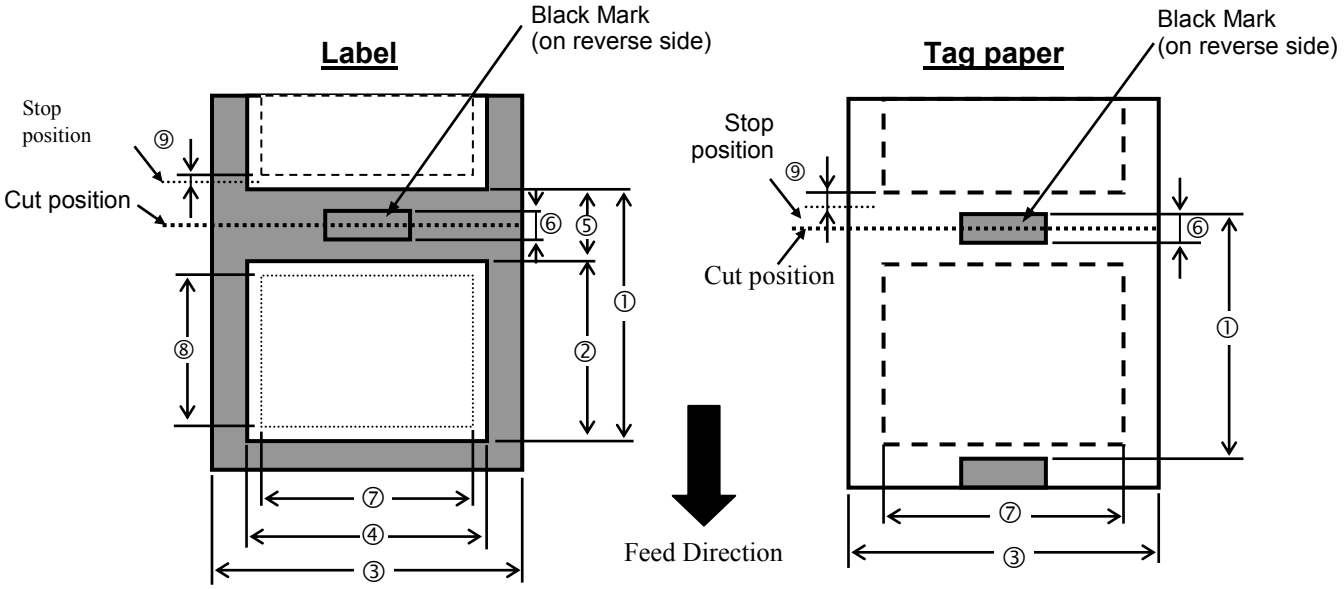
6. SUPPLY SPECIFICATIONS

6.1 Media

Please make sure that the media being used is approved by TOSHIBA TEC. The warranty does not apply when a problem is caused by using media that is not approved by TOSHIBA TEC.
For information regarding TOSHIBA TEC approved media, please contact a TOSHIBA TEC authorized service representative.

6.1.1 Media Type

Two types of media can be loaded for this thermal transfer and direct thermal printer: label or tag. The table below shows size and shape of the media available for this printer.



		B-EX4T3-HS		
		Batch	Cutter	Peel-off (*1)
① Pitch	Min.	5mm	25mm	5mm
	Max.	500mm	500mm	256mm
② Label Length	Min.	3mm		
	Max.	498mm	497mm	254mm
③ Backing paper Width	Min.	25mm		
	Max.	110mm		
④ Label Width	Min.	13mm		
	Max.	108mm		
⑤ Gap	Min.	2mm	3mm	2mm
	Max.	20mm		
⑥ Black mark length	Min.	2mm	3mm	2mm
	Max.	20mm		
⑦ Effective print Width	Max.	104mm		
⑧ Effective print Length	Min.	3mm		
	Max.	498mm	497mm	254mm
⑨ Print speed up/slow down area	Slow up	1mm		
	Slow down	1mm		
Thickness	Min.	0.13mm		
	Max.	0.17mm		
Max. outer roll diameter		Φ200mm(Φ180, When using built-in Rewinder) *Φ170, when paper tube inner diameterφ50.8		
Roll-up method		Inner・Outer		
Paper core		ID φ76.2±0.3mm		

(*1) When using the High precision peel-off module (B-EX904-HH-QM-R) .

NOTES:

1. To ensure print quality and print head life use only TOSHIBA TEC specified media.

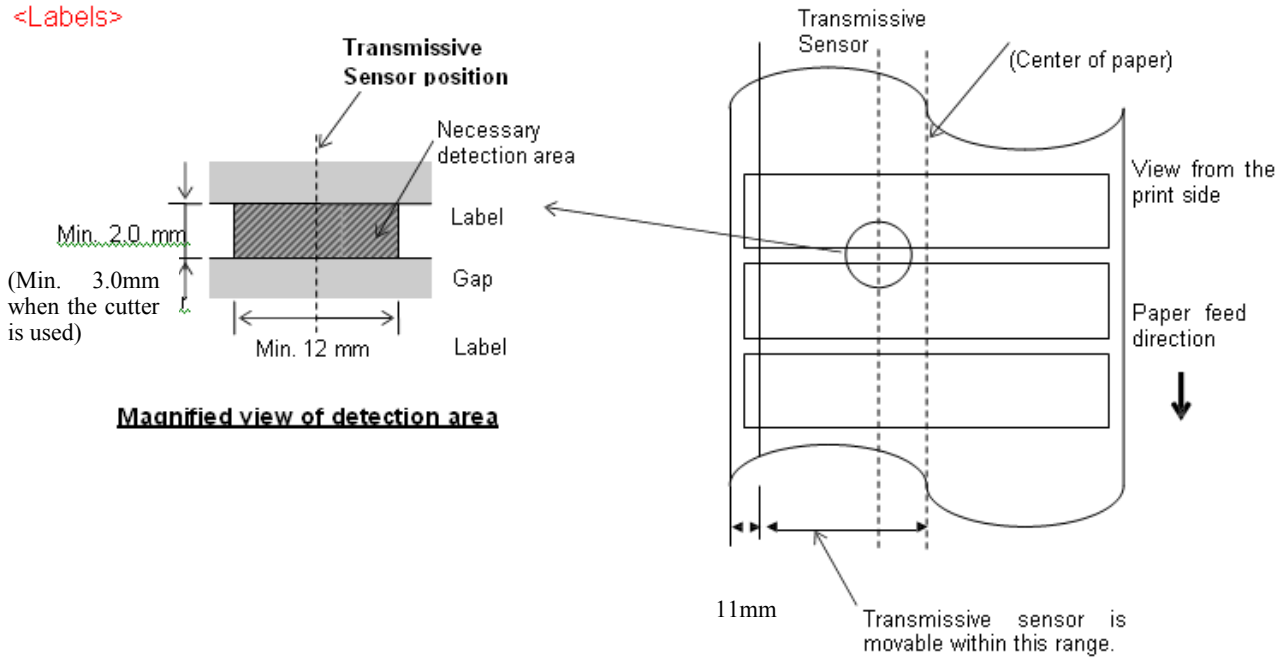
2. When the Disc cutter is used, the minimum label length shall be 18.0 mm – (Gap length/2) or longer.

3. The ratio of a label length to a gap length must be a minimum of 3 to 1 (3:1).

4. When using label stock in cut mode, be sure to cut in the gaps. Cutting labels will cause the adhesive to stick to the cutter, which may affect the cutter performance and shorten the cutter life.

6.1.2 Detection Area of the Transmissive Sensor

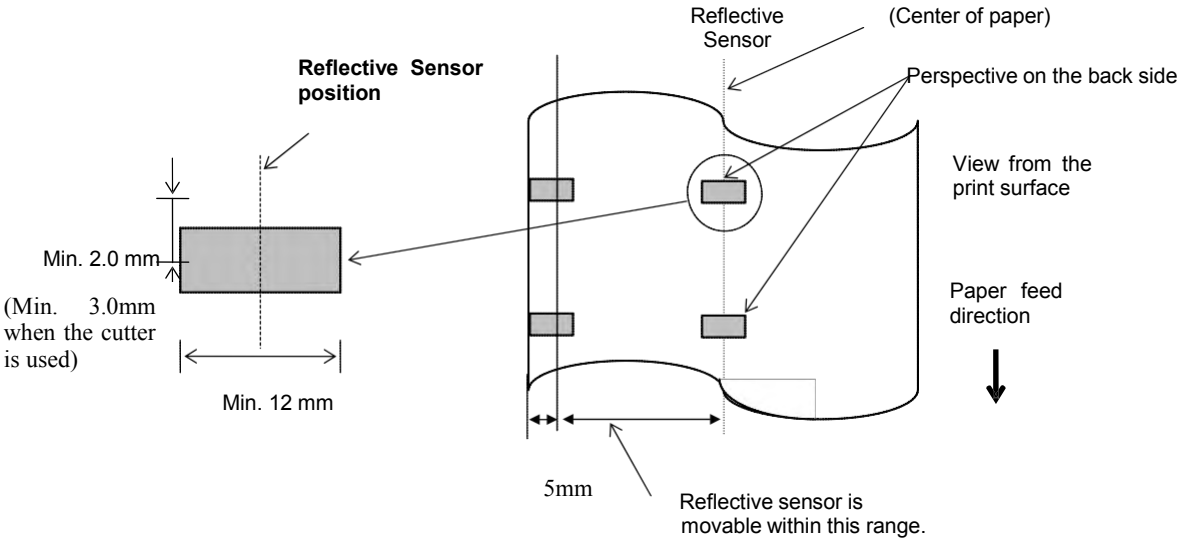
The Transmissive Sensor is movable from the centre to the left edge of media.
The Transmissive Sensor detects a gap between labels, as illustrated below.



NOTE: *Round holes are not acceptable.*

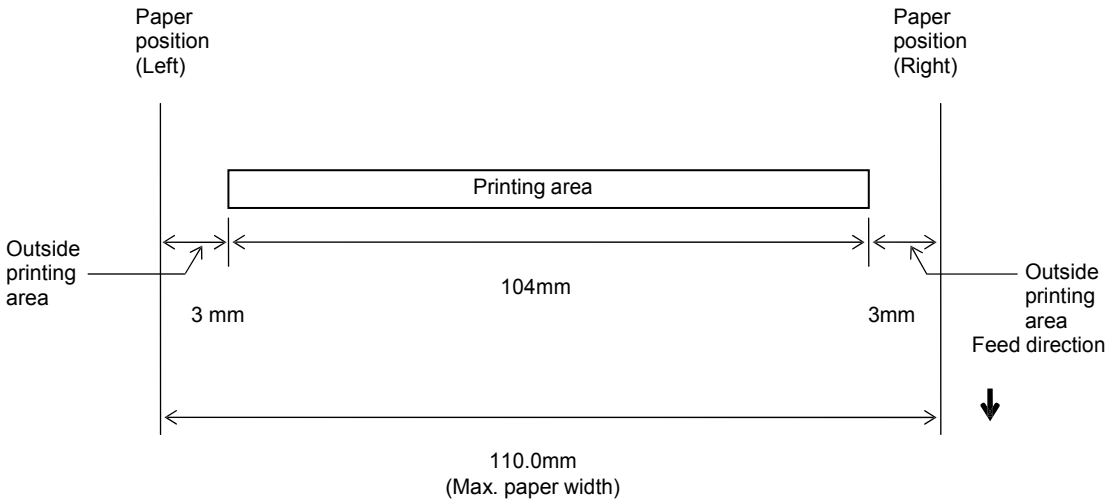
6.1.3 Detection Area of the Reflective Sensor

1. The sensor is movable in the range from the center of the paper to the left end.
2. The reflectance of the black mark must be 10% or less with a waveform length of 950 nm.
3. The sensor detects at the center of the black mark.
4. The black marks, if necessary, must be printed on the labels in the gap areas.
5. Rectangular holes can substitute the black marks, on the condition that nothing is printed on the back side. Round holes cannot be detected by the reflective sensor.

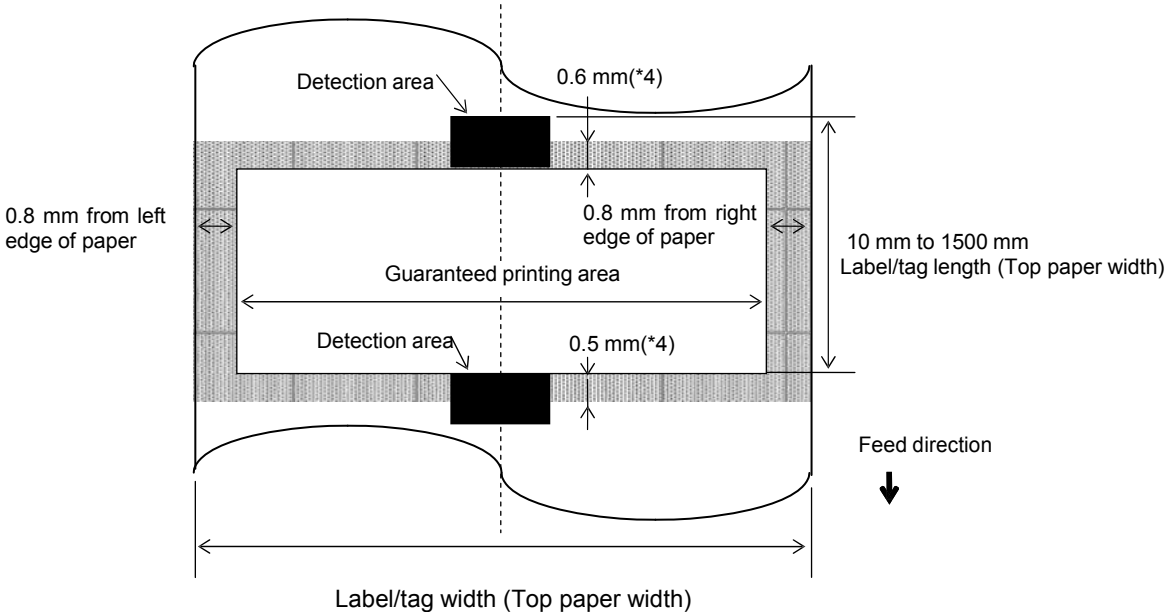


6.1.4 EFFECTIVE PRINT AREA OF PAPER

6.1.4.1 Relationship between Print Head Effective Print Width and Paper Width



6.1.4.2 Effective Print Area of Tags and Labels



NOTES:

1. *Print quality in the shaded area is not guaranteed. For the label, printing in the 1-mm width area around the label is not guaranteed as well as the shaded area shown above.*
2. *The center of the paper (label and tag) is almost aligned with the center of the print head.*
3. *If printing is performed in the shaded area, the ribbon may wrinkle. This may affect the print quality of the guaranteed printing area.*
4. *0.8mm when print speed 2ips at continuous and peel-off, 1.2mm when print speed is 3ips~6ips. 1.0mm when print speed 2ips at cut, 1.6mm when print speed is 3ips~6ips.*

6.2 Ribbon

Please make sure that the ribbon being used is approved by TOSHIBA TEC. The warranty does not apply to any problem caused by using non-approved ribbons.
For information regarding TOSHIBA TEC approved ribbon, please contact a TOSHIBA TEC service representative.

	B-EX4T3-HS
Ribbon Width	40mm to 115mm
Max Ribbon Length	300m.
Max Ribbon OD	Φ70mm
Ribbon Core	Φ25.7 ±0.3mm
Type	Flat head
Ribbon winding	Outside

The table below shows the correlation between ribbon width and media width (backing paper is not included.)

Ribbon width	Media width
60 mm	25 - 55 mm
90 mm	56 – 85 mm
110 mm	86 – 105 mm
115 mm	106 – 110 mm

NOTES:

1. *To ensure print quality and print head life use only TOSHIBA TEC specified ribbons.*
2. *To avoid ribbon wrinkles use a ribbon that is wider than the media by 5 mm or more. However, too much difference in width between the two may cause wrinkles.*

6.3 Recommended Media and Ribbon Types

Media type	Description
Vellum paper and labels	General use for low cost applications.
Coated paper	Matt coated paper General use including applications that require small letters and/or symbols. Glossy coated paper Used where a high-grade finish is required
Plastic films	Synthetic film (Polypropylene, etc.) This water-proof and solvent-resistant material has high physical strength and low-temperature resistance, but poor heat resistance (dependant upon material). This material can be used for labels stuck to recyclable containers, so it can be recycled in the same process. PET film This water-proof and solvent-resistant material has high physical strength, and low-temperature resistance as well as heat resistance. This material is used for many applications, especially where high durability is required. Mode/serial plate labels, caution labels, etc. Polyimide This material gives the best performance on heat resistance (greater than PET film). It is often used for PCB labels as it can withstand passage through a solder bath.

6.3 Media and Ribbon Types (Cont.)

Ribbon type	Description
Smear-less ribbon (Wax resin ribbon)	Good match for coated paper. The printed image will resist water and light rubbing.
Scratch and solvent resistance ribbon	Very good match for plastic films (synthetic paper, PET, polyimide, etc.) Scratch and solvent resistance Heat resistance with PET and polyimide.

Combination of Media and Ribbon

Media type / Ribbon type	Vellum paper and label	Coated paper	Plastic films
Smear-less ribbon (wax-resin ribbon)		○	
Scratch/solvent resistance ribbon			○

○: Good match

6.4 Care/Handling of Media and Ribbon

CAUTION!

Be sure to carefully review and understand the Supply Manual. Use only media and ribbons that meet specified requirements. Use of non-specified media and ribbons may shorten the head life and result in problems with bar code readability or print quality. All media and ribbons should be handled with care to avoid any damage to the media, ribbons or printer. Read the guidelines in this section carefully.

- Do not store the media or ribbon for longer than the manufacturer's recommended shelf life.
- Store media rolls on the flat end. Do not store them on the curved sides as this might flatten that side causing erratic media advance and poor print quality.
- Store the media in plastic bags and always reseal after opening. Unprotected media can get dirty and the extra abrasion from the dust and dirt particles will shorten the print head life.
- Store the media and ribbon in a cool, dry place. Avoid areas where they would be exposed to direct sunlight, high temperature, high humidity, dust or gas.
- The thermal paper used for direct thermal printing must not have specifications which exceed Na+ 800 ppm, K+ 250 ppm and Cl- 500 ppm.
- Some ink used on pre-printed media may contain ingredients which shorten the print head's product life. Do not use labels pre-printed with ink which contain hard substances such as carbonic calcium ($CaCO_3$) and kaolin (Al_2O_3, $2SiO_2$, $2H_2O$).

For further information, please contact your local distributor or your media and ribbon manufacturers.

APPENDIX 1 MESSAGES AND LEDS

Appendix 1 describes the LCD messages displayed on the operation panel.

Symbols in the message

1: ❍: The LED is illuminated. ⊙: The LED is flashing. ●: The LED is unlit.
2: %%,%%%,%%%: Remaining memory size of the external memory: 0 to 09,999,999 (in K bytes)
3: ####: Remaining memory size for PC commands storage area in the internal memory: 0 to 3072 (in K bytes)
4: &&&&: Remaining memory size for writable characters storage area: 0 to 3147 (in K bytes)

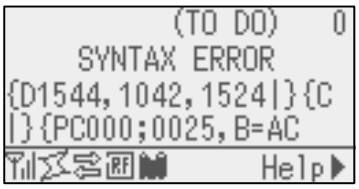
No.	LCD Message	LED Indication		Printer Status	Restoration by RESTART key	Acceptance of Status Request/ Reset Command
		ONLINE	ERROR		Yes/No	Yes/No
1	ON LINE	❍	●	In online mode	-----	Yes
	ON LINE	⊙	●	In online mode (The printer is communicating)	-----	Yes
2	HEAD OPEN	●	●	The print head block is open in online mode.	-----	Yes
3	PAUSE	●	●	The printer is paused.	Yes	Yes
4	COMMS ERROR	●	❍	A parity, overrun, or framing error has occurred during communication through the RS-232C.	Yes	Yes
5	PAPER JAM	●	❍	The media has jammed during paper feed.	Yes	Yes
6	CUTTER ERROR	●	❍	A problem has occurred with the cutter module.	Yes	Yes
7	NO PAPER	●	❍	The media has run out, or the media is not loaded properly.	Yes	Yes
8	NO RIBBON	●	❍	The ribbon has run out.	Yes	Yes
9	HEAD OPEN	●	❍	Feed or printing was attempted with the print head block open.	Yes	Yes
10	HEAD ERROR	●	❍	There is a problem with the print head.	Yes	Yes
11	EXCESS HEAD TEMP	●	❍	The print head has overheated.	No	Yes
12	RIBBON ERROR	●	❍	The ribbon has been torn. A problem has occurred with the sensor that determines the torque for the ribbon motor.	Yes	Yes
13	REWIND FULL	●	❍	The internal rewind unit is full.	Yes	Yes
14	SAVING#####KB/&&&&KB or SAVING%,%%%.%%%KB	❍	●	Writable character or PC command save mode	-----	Yes
15	FORMAT#####KB/&&&&KB or FORMAT%,%%%.%%%KB	❍	●	The storage area is being initialised.	-----	Yes
16	NOW LOADING…	❍	●	TrueType font or BASIC program is being downloaded.	-----	Yes
17	MEMORY WRITE ERR.	●	❍	An error has occurred while writing to flash memory or USB memory.	No	Yes
18	FORMAT ERROR	●	❍	An erase error has occurred while formatting the flash memory or USB memory.	No	Yes
19	MEMORY FULL	●	❍	Data cannot be stored because the flash memory or USB memory is full.	No	Yes
20	SYNTAX ERROR (Refer to “Notes”)	●	❍	A command error has occurred while analyzing the command.	Yes	Yes
21	POWER FAILURE	●	❍	A power failure has occurred.	No	No

22	EEPROM ERROR	●	❍	Data cannot be read from/written to a backup EEPROM properly	No	No
23	SYSTEM ERROR	●	❍	When the following abnormal operations are performed, a system error occurs: (a) Command fetch from an incorrect address. (b) Access to word data at an incorrect address. (c) Access to long-word data at an incorrect address. (d) Access to the area of 80000000H to FFFFFFFFH in the logic space in user mode. (e) An undefined instruction in an area other than a delay slot was decoded. (f) An undefined instruction in a delay slot was decoded. (g) An instruction to rewrite a delay slot was decoded.	No	No
24	DHCP CLIENT INIT…	●	●	DHCP Client is being initialized. (Only when the DHCP is enabled.)	-----	-----
25	INPUT PASSWORD	●	●	The printer is waiting for a password to be entered.	No	No
26	PASSWORD INVALID	●	●	A wrong password was entered three consecutive times.	No	No
27	LOW BATTERY (Refer to Notes)	●	❍	RTC Battery is low.	No	Yes
28	INTERNAL COM ERR	●	●	A hardware error has occurred in the internal serial interface.	No	No

NOTE: *When an error message listed above appears on the LCD display please refer to* ***Section 5 TROUBLESHOOTING*** *for a solution.*

NOTES:

- *If an error is found in a command received, up to 42 bytes of the erroneous command, starting from the command code, will be displayed. (However, [LF] and [NUL] will not be displayed.)*



Example 1

[ESC]PC001;0**A**00,0300,2,2,A,00,B[LF][NUL]

Command error

The following message appears.

SYNTAX ERROR
PC001;0A00,0300,2,2,A
,00,B

Example 2

[ESC]T20**G**30[LF] [NUL]

Command error

The following message appears.

SYNTAX ERROR
T20G30

Example 3

[ESC]PC002;0100,0300,15,15,A,00,00,J0101,+000000000**A**,Z10,P1[LF] [NUL]

Command error

The following message appears.

SYNTAX ERROR
PC002;0100,0300,15,15
,A,00,00,J0101,+00000

- *When the error is shown, "? (3FH)" appears for character codes other than 20H to 7FH and A0H to DFH.*
- *For details, please refer to the* ***B-EX4/EX6 Series External Equipment Interface Specification.***

NOTES:

・The battery check does not work when the printer is being reset and the RTC is not mounted.

・It is necessary to follow the procedure below to use RTC function under a low battery condition.

・Turn off the printer power while the printer is in an error state. Start the printer in the system mode, set the date and time for the RTC again, then reset the printer to place the printer in online state.

* The printer can print the programmed date and time until it is turned off.

APPENDIX 2 INTERFACE

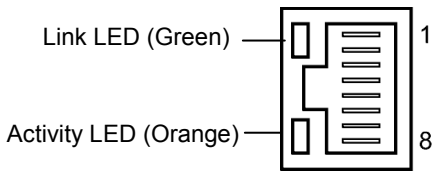
■ USB interface (Standard)

Physical Layer: Conforming to V2.0 Full speed
Transfer type: Control transfer, Bulk transfer
Transfer rate: Full speed (12M bps)
Class: Printer class
Number of ports: 1
Power source: Self power
Connector: Type B

Pin No.	Signal
1	VCC
2	D-
3	D+
4	GND

■ LAN (Standard)

Physical Layer: IEEE802.3 10BASE-T/100BASE-TX
Number of ports: 1
Connector: RJ-45
LED status: Link LED, Activity LED



LED	LED Status	LAN status
Link	ON	10Mbps link or 100Mbps link is detected.
	OFF	No link is detected. ** Communication cannot be made while the Link LED is off.*
Activity	ON	Communicating
	OFF	Idle

LAN cable: 10BASE-T: UTP category 3 or category 5
100BASE-TX: UTP category 5
Cable length: Segment length Max. 100 m

> ***NOTE:***
> *When a generally-used twisted pair Ethernet (TPE) or UTP cable is used, communication errors may occur subject to your operating environment. In such a case, please use a shielded twisted pair cable.*

■ Serial interface (Standard)

Type: RS-232C
Communication mode: Full duplex
Transmission speed: 2400 bps, 4800 bps, 9600 bps, 19200 bps, 38400 bps, 115200 bps
Synchronization: Start-stop synchronization
Start bit: 1 bit
Stop bit 1 bit, 2 bit
Data length: 7 bit, 8 bit
Parity: None, EVEN, ODD
Error detection: Parity error, Framing error, Overrun error

Protocol: Unprocedure communication
Data input code: ASCII code, European character 8 bit code, graphic 8 bit code, JIS8 code, Shift JIS Kanji code, JIS Kanji code
Receive buffer: 1M byte
Connector:

Pin No.	Signal
1	N.C
2	TXD (Transmit Data)
3	RXD (Received Data)
4	DSR (Data Set Ready)
5	SG (Signal Ground)
6	DTR (Data Terminal Ready)
7	CTS (Clear to Send)
8	RTS (Request to Send)
9	N.C

■ Parallel interface (Centronics) (Option: B-EX700-CEN-QM-R)

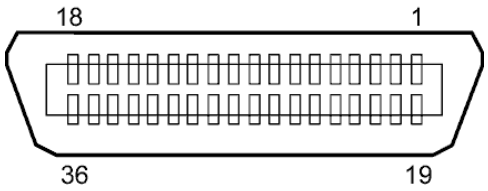
Mode: Conforming to IEEE1284
Compatible mode (SPP mode), Nibble mode
Data input method: 8 bit parallel
Control signal:

SPP Mode	Nibble Mode	ECP Mode
nStrobe	HostClk	HostClk
nAck	PtrClk	PeriphClk
Busy	PtrBusy	PeriphAck
Perror	AckDataReq	NAckReverse
Select	Xflag	Xflag
nAutoFd	HostBusy	HostAck
nInit	nInit	nReverseRequest
nFault	nDataAvail	nPeriphRequest
nSelectIn	IEEE1284Active	IEEE1284Active

Data input code: ASCII code
European 8 bit code
Graphic 8 bit code
JIS8 code
Shift JIS Kanji code
JIS Kanji code
Receive buffer: 1MB

Connector:

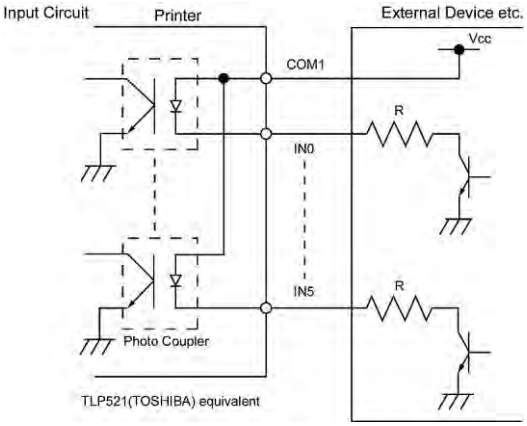
PIN No.	Signal		
	SPP Mode	Nibble Mode	ECP Mode
1	nStrobe	HostClk	HostClk
2	Data 1	Data 1	Data 1
3	Data 2	Data 2	Data 2
4	Data 3	Data 3	Data 3
5	Data 4	Data 4	Data 4
6	Data 5	Data 5	Data 5
7	Data 6	Data 6	Data 6
8	Data 7	Data 7	Data 7
9	Data 8	Data 8	Data 8
10	nAck	PtrClk	PeriphClk
11	Busy	PtrBusy	PeriphAck
12	PError	AckDataReq	nAckReverse
13	Select	Xflag	XFlag
14	nAutoFd	HostBusy	HstAck
15	NC	NC	NC
16	0V	0V	0V
17	CHASSIS GND	CHASSIS GND	CHASSIS GND
18	+5V (For detection)	+5V (For detection)	+5V (For detection)
19	TWISTED PAIR GND(PIN1)	TWISTED PAIR GND(PIN1)	TWISTED PAIR GND(PIN1)
20	TWISTED PAIR GND(PIN2)	TWISTED PAIR GND(PIN2)	TWISTED PAIR GND(PIN2)
21	TWISTED PAIR GND(PIN3)	TWISTED PAIR GND(PIN3)	TWISTED PAIR GND(PIN3)
22	TWISTED PAIR GND(PIN4)	TWISTED PAIR GND(PIN4)	TWISTED PAIR GND(PIN4)
23	TWISTED PAIR GND(PIN5)	TWISTED PAIR GND(PIN5)	TWISTED PAIR GND(PIN5)
24	TWISTED PAIR GND(PIN6)	TWISTED PAIR GND(PIN6)	TWISTED PAIR GND(PIN6)
25	TWISTED PAIR GND(PIN7)	TWISTED PAIR GND(PIN7)	TWISTED PAIR GND(PIN7)
26	TWISTED PAIR GND(PIN8)	TWISTED PAIR GND(PIN8)	TWISTED PAIR GND(PIN8)
27	TWISTED PAIR GND(PIN9)	TWISTED PAIR GND(PIN9)	TWISTED PAIR GND(PIN9)
28	TWISTED PAIR GND(PIN10)	TWISTED PAIR GND(PIN10)	TWISTED PAIR GND(PIN10)
29	TWISTED PAIR GND(PIN11)	TWISTED PAIR GND(PIN11)	TWISTED PAIR GND(PIN11)
30	TWISTED PAIR GND(PIN31)	TWISTED PAIR GND(PIN31)	TWISTED PAIR GND(PIN31)
31	nInit	nInit	nReverseRequest
32	nFault	NDataAvail	nPeriphRequest
33	0V	0V	0V
34	NC	NC	NC
35	NC	NC	NC
36	nSelectIn	IEEE1284Active	IEEE1284Active



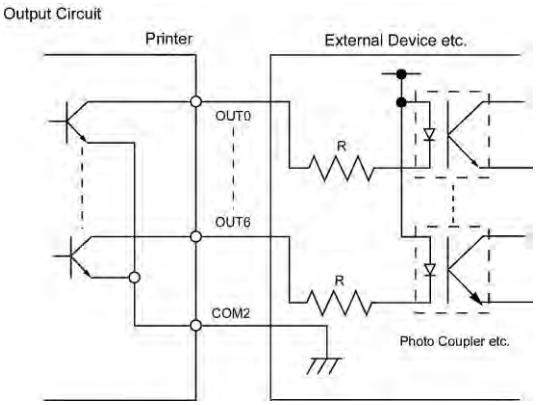
■ Expansion I/O Interface (Option: B-EX700-IO-QM-R)

Input Signal	IN0 to IN5
Output Signal	OUT0 to OUT6
Connector (External Device Side)	FCN-781P024-G/P or equivalent
Connector (Printer Side)	FCN-685J0024 or equivalent

Input Circuit



Output Circuit



Operating environment	Temperature: 0 to 40 °C Humidity: 20 to 90% (No Condensation)

APPENDIX 3 PRINT SAMPLES

■ **Font**

<A>Times Roman medium

<B>Times Roman med

<C>Times Roman bold

<D>Times Roman bo

<E>Times Roman bo

<F>Times Roman italic

<G>Helvetica medium

<H>Helvetica medium

<I>Helvetica mediu

<J>Helvetica bold

<K>Helvetica bo

<L>Helvetica italic

<M>PRESENTATION BOLD

<N>Letter Gothic medium

<O>Prestige Elite medium

<P>Prestige Elite

<Q>Courier medium

<R>Courier bold

<S>OCR-A

<T>OCR-B

<q>Gothic 725 Black

<Outline F **Helvetica bold**

<Outline Font:B> **Helvetica bold(P)**

<Outline Font:E> 0123456789,¥$

<Outline Font:F> 0123456789,¥$

<Outline Font:G> 0123456789,¥$

<Outline Font:H> **Dutch 801 bold**

<Outline Font:I> **Brush 738 regular**

<Outline Font:J> **Gothic 725 Black**

APPENDIX 3 PRINT SAMPLES (Cont.)

■ Bar codes

JAN8, EAN8



MSI



Interleaved 2 of 5



CODE39 (Standard)



NW7



JAN13, EAN13



UPC-E



EAN13+2 digits



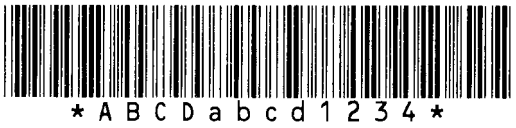
EAN13+5 digits



CODE128



CODE39 (Full ASCII)



CODE93



UPC-E+2 digits



UPC-E+5 digits



EAN8+2 digits



EAN8+5 digits



UPC-A



UPC-A+2 digits



UPC-A+5 digits



UCC/EAN128



Industrial 2 of 5



POSTNET



Customer bar code



Customer bar code of high priority



KIX Code



RM4SCC



Data Matrix



MicroQR



QR code



Micro PDF417



MaxiCode



CP Code



PDF417



- **GS1 DataBar family (with no compound composite printed)**

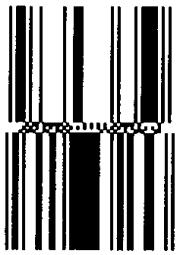
GS1 DataBar (Truncated)



GS1 DataBar Stacked



GS1 DataBar Stacked Omnidirectional



GS1 DataBar Limited



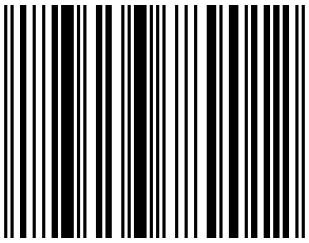
GS1 DataBar Expanded



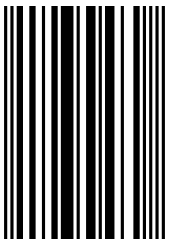
GS1 DataBar Expanded Stacked



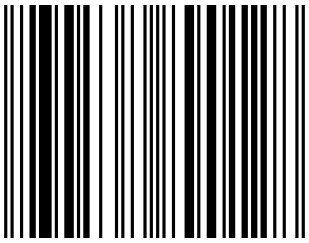
UPC-A



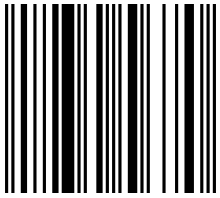
UPC-E



EAN-13



EAN-8



UCC/EAN-28 with CC-A, CC-B, or CC-C

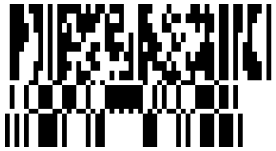


- **GS1 DataBar family (with compound composite printed)**

GS1 DataBar (Truncated)



GS1 DataBar Stacked



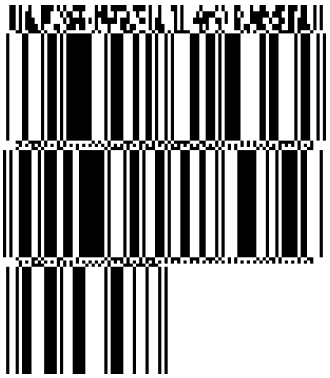
GS1 DataBar Stacked Omnidirectional



GS1 DataBar Limited



GS1 DataBar Expanded Stacked



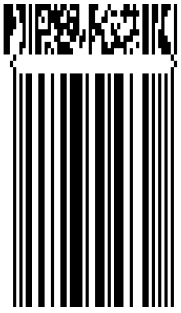
GS1 DataBar Expanded



UPC-A



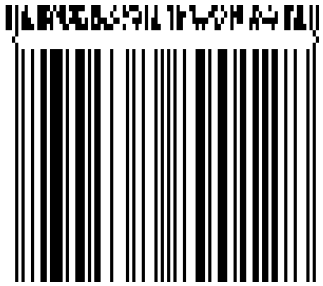
UPC-E



EAN-8



EAN-13



UCC/EAN-128 with CC-A or CC-B



UCC/EAN-128 with CC-C



APPENDIX4 GLOSSARIES

Barcode
A code which represents alphanumeric characters by using a series of black and white stripes of different widths. Reading barcodes is a fast and accurate means of capturing data.

Batch mode
An issue mode that continuously prints until the specified number has been printed.

Black mark
A black mark printed on the media so that the printer can maintain a consistent print position by detecting this mark.

Black mark sensor
A reflective sensor that detects the difference of potential between the black mark and print area to find the print start position.

Built-in rewinder mode
A printer mode where media is wound onto the build-in rewinder.

Cut mode
A printer mode where an optional cutter module is installed to automatically cut media from the supply roll after they are printed. The print command can specify to cut after every print or to cut after a set number of prints.

Cutter module
A device used to cut the media.

DHCP
Dynamic Host Configuration Protocol
A communications protocol that allocates an IP address to a computer plugged into a network.

DPI
Dots Per Inch
The unit used to express print density.

Expansion I/O interface
An interface circuit that may be installed to allow the printer to be connected to an external device such as a wrapping machine. It can receive feed, print start, and pause signals from the external device and to send back print, pause, and error status signals to the external device.

Feed gap sensor
A transmissive sensor that detects the difference of potential between the gap between labels and the label to find the print start position.

Font
A complete set of alphanumeric characters in one style of type. E.g. Helvetica, Courier, Times

Gap
Gap between labels on a backing material

IPS
Inch per second
The unit used to express print speed.

Label
A type of media with adhesive backing.

LCD
Liquid Crystal Display
Installed on the operation panel and displays operation modes, error message etc.

Media
Material on which data is printed by the printer. Labels, tag paper, fanfold paper, perforated paper etc.

Plug and Play
When Plug and Play is enabled, the PC will automatically identify the printer (if the PC supports Plug & Play), optimise the system resource (IRQ and DMA), and display a message prompting a printer driver installation.

Pre-printed media
A type of media on which characters, logos, and other designs have been already printed.

Printer IP address
A 32-bit address of a printer connected to TCP/IP network, which identifies the printer. An IP address is written as 4 sets of numbers, separated by full stops. For example 192.168.10.20.

Print head element
The thermal print head consists of a single line of tiny resistive elements. When current is allowed to flow through each element it heats up causing a small dot to be burned onto thermal paper or a small dot of ink to be transferred from a thermal ribbon.

Print speed
The speed at which printing occurs. This speed is expressed in units of IPS (inches per second).

Reflective sensor
See Black mark sensor.

Resolution
The number of individual dots a printer can produce within a unit of distance. Printer resolution measured in Dots per Inch. As the number of dots per inch increases, the resolution increases, resulting in a more detailed image.

RFID (Radio Frequency Identification)
RFID is a technology that uses radio waves to exchange data between a reader and an electronic tag. The tag can be encapsulating inside a label which can also be printed on. RFID is very useful for object identification and tracking.

Ribbon
An inked film used to transfer an image or text onto media. In thermal transfer printing, it is heated by the print head, causing an image to be transferred onto the media.

Strip mode
The printer removes labels from the backing paper. After each issue the printer stops until the label is removed. Once the label is removed the next label will be issued and so on.

Supplies
Media and ribbon

Tag
A type of media with no adhesive, usually made from cardboard or other durable material.

Thermal direct printing
A printing method using no ribbon and thermal media which reacts to heat. The print head makes direct contact with the media producing text or images.

Thermal print head
A print head using thermal transfer or thermal direct printing method.

Thermal transfer printing
A printing method where the thermal print head heats an ink or resin coated ribbon against the media. The ink/resin is then transferred onto the media.

Threshold setting
A sensor setting that allows the printer to maintain a consistent print position of pre-printed media.

Transmissive sensor
See Feed gap sensor.

USB (Universal Serial Bus)
An interface that is used to connect peripherals, such as a printer, keyboard, mouse to computer or host. The USB port may allow disconnection of a USB device without turning off the power.

Web printer
The web printer function allows you to browse the printer status on the PC, issue media, check or change the settings, or download firmware to the printer. For details, refer to the **Network Specification**.

[redacted]

TOSHIBA TEC CORPORATION

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